THE TEACHING OF GEOGRAPHY

INCORPORATED ASSOCIATION of ASSISTANT MASTERS in SECONDARY SCHOOLS
FOUNDED 1891
INCORPORATED 1901
QVAE REGIO IN TERRIS NOSTRI NON PLENA LABORIS

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FOREWORD

The Teaching of Geography was first published by the Incorporated Association of Assistant Masters in Secondary Schools in January 1935; a second edition in 1939, and reprinted in 1946. The third edition is the fifth book in the Association's post-war series on the teaching of the main subjects in the secondary school curriculum. *The Teaching of Science*, *The Teaching of Modern Languages*, *The Teaching of History* and *The Teaching of English* have already been warmly welcomed and the companion volumes on Classics and Mathematics will appear in due course. In the preparation of these publications the Association has the good fortune to be able to draw upon the devotion, knowledge, and experience of many members and friends, to all of whom it would express its most grateful thanks.

The far-reaching reforms in the administration of secondary education foreshadowed in the Education Act of 1944, the development of a wide variety of types of secondary education suited to the abilities and aptitudes of all children in the secondary stage of their education, and the need for further advancement of the 'grammar-school type' of secondary education combine to make it essential that there should now be a thorough examination of the whole content of what is taught in the schools.

It is the earnest hope of the Executive Committee that this present publication will bring to that study a contribution of no mean value and that its wide circulation will exert an important influence on the theory and practice of the teaching of Geography in secondary schools of all types.

A. W. S. HUTCHINGS
Secretary, Incorporated Association of
Assistant Masters in Secondary Schools

1952

PREFACE TO FIRST EDITION

The serious study of Geography is of such recent growth in this country that in 1931 it was possible for an editor, who had an unpleasant memory of the kind of Geography he had tried to learn in his youth, to publish in a leading London newspaper the statement that ‘ of all forms of useless knowledge that of Geography is the most exacting. Hours are wasted in teaching children something which, if they chose to remember it, would be of no value whatever.’

It must be admitted that in the past Geography teaching has often proved ineffective for want of a definite aim, and that it has often been in the hands of teachers who possessed neither knowledge of nor interest in the subject. Even at the present day it is possible to find schools where the content of the subject is imperfectly understood and where the methods of teaching are still those of the nineteenth century.

In recent years, however, a revolutionary change has taken place in the teaching of Geography. New principles have been adopted, new ideas introduced, new teaching methods have replaced the old, and are now firmly established in the majority of schools. Indeed, there can be no doubt that, on the whole, the position of Geography has been greatly advanced in schools of all types and in the universities throughout the country.

Opinion is still by no means uniform on many questions connected with the Geography course—as to precisely what geographical knowledge, for instance, a pupil should be expected to possess when he leaves school. On the other hand, there are difficulties associated with changes of outlook and curriculum. The amount of subject-matter needed to cover the requirements of the School Certificate Examinations has had its effect on the teaching; but a more serious danger is the tendency, in some instances, to excessive reaction from the old methods, whereby the memorizing of a mass of unrelated facts gives place merely to the memorizing of ready-made generalizations, without the intimate knowledge of detail which is necessary for the proper understanding of these generalizations.

In view of these and other considerations it appeared that the time was ripe for an investigation into the present position, and in January 1930, the Council of the I.A.A.M. passed a resolution that a Memorandum on the Teaching of Geography should be prepared, a central committee of twelve being appointed to undertake the work.

This Committee included masters in Public Schools, County and Municipal Secondary Schools, and County Grammar Schools. Dual and mixed schools were represented and, without any prejudgment of the question as to what should be taught to girls as distinct from boys, the requirements of girls have not been ignored. The members of the Committee were selected from each of the principal geographical subdivisions of England and Wales. Each had experience in the work of preparing pupils for the First School Examination of at least one of the English University Examining Bodies or of the Central Welsh Board. Two of them were acting as principal examiners for School Certificate Examinations while the Committee was in existence. Among the corresponding members of the Committee were included teachers in every type of Secondary School in every part of the country, and it is to their efforts in producing a great volume of facts and opinions that the comprehensive form of the Memorandum is due.

The fact that in only 50 per cent of the schools from which reports were received was Geography studied beyond the matriculation stage may be due to the tardy recognition of Geography as a principal subject in advanced courses as well as to the almost entire absence of scholarships in Geography at the universities. The Committee believes that, with the recent awakening of public interest in world affairs, the general extension of the work in Geography to the post-matriculation years is inevitable. A section on Geography in the Advanced Course has therefore been included in this Report, though it is recognized that some of the ideas expressed in the section may need revision when more teachers have gained experience of such work. In this and in other matters, the Committee invites criticisms and suggestions which may be embodied in future editions of this Memorandum.

At the time of going to press, the Board of Education had not completed its departmental enquiry into the teaching of Geography and the Committee has been unable to make use of data based upon official returns. However, a great deal of first-hand information has been obtained from university professors and examiners and lecturers in training departments, from examining bodies, and from members of other associations. It is hardly necessary to state that most of the members of the Committee are also members of the Geographical Association, and though there has been no official collaboration between the two associations, the thanks of the Committee are due to individual members of the Geographical Association for their interest in its activities.

The thanks of the Committee are due to Mr. W. Thomas, who has acted as honorary secretary, to Mr. C. H. Saxelby, who has carried out the difficult task of editor, and to Messrs. A. E. L. Hudson and J. A. Mortlock who, though no longer engaged in teaching, have given generously of their leisure in order to bring the work to a successful conclusion.

Grateful acknowledgment must also be made to Dr. J. M. Crofts, Secretary of the Northern Universities Joint Matriculation Board, for information regarding the methods of conducting the Board's Examinations, and for permission to print copious extracts from his and Mr. Jones's book on Secondary School Examination statistics.

L. B. CUNDALL
Chairman, Geography Sub-Committee

PREFACE TO THIRD EDITION

IN the preface to the second edition it was said that 'recent events have proved that failure to make allowance for geographical factors in international relations may have serious consequences of world-wide significance.' Comment is needless, but in more ways than one the recent war proved the necessity of maintaining a high standard of geographical training in our schools and universities; for instance, the work of trained geographers was of the greatest importance in the planning of campaigns and operations. It is now abundantly clear, too, that a widespread knowledge of and training in Geography is essential for the solution of problems of reconstruction, quite apart from its merits as an element in general education. Moreover, a knowledge of geographical factors emphasizes the urgent need for that world-wide co-operation which is the only foundation for permanent peace.

The preparation of the third edition has been difficult not only on account of recent changes in educational organization and practice, but also because in every part of the world education has been affected adversely by the events of the past nine years. Not least of the disasters of the recent war has been the elimination of free geographical studies in many parts of continental Europe, and present conditions have made it necessary to withdraw the appendix which describes the pre-war teaching of Geography in foreign schools. It is to be hoped that the reconstruction and re-equipment of European schools will make it possible for future editions to give some account of the methods and schemes of work of our colleagues in other parts of the world. An International Geographical Association has been formed to re-establish contacts with foreign teachers of Geography, and to promote the diffusion of information on the teaching of this subject.

In the programme of educational reconstruction issued by U.N.E.S.C.O., Geography is regarded not as a separate branch of knowledge but as a variable element in a composite subject, known as Social Studies, which, whatever its purpose, usually results in the attempt to imbue the child with the virtues of adult citizenship. As it is unable to report a single instance where the fusion of Geography with other subjects has succeeded in this purpose, the Committee reiterates its previously expressed opinion that in education for citizenship Geography cannot be rivalled by any other subject in the contribution it can offer. At the same time, it would call attention to the danger of the Geography specialist becoming too narrowly academic in his outlook and suggests that all teachers of the subject should develop an interest in those branches of knowledge, such as politics, economics and anthropology, which are relevant to this wider aim of making good citizens.

It is fortunate that at this critical stage of educational development the Ministry of Education has appointed a number of qualified geographers to its inspectorate and it is to be hoped that they will be able to prevent any lowering of standards such as might result from the fusion of Geography with other subjects. It is possible that in Britain the method of regional studies has been over-emphasized at the expense of general world studies and that attention has been focused rather on the exploitation of nature by individuals than on the inter-relationship between society and its environment. It must be borne in mind, however, that the synthesis of the various elements which together produce the concept of world citizenship demands a maturity of mind which only begins to develop in the sixth form. Any attempt to foster a belief in democracy by feeding the minds of younger children with a composite brew of Civics, Geography and History may be only less harmful in its effects than has been the indoctrination of children's minds in Nazi Germany, Fascist Italy, and Soviet Russia with totalitarian dogmas.

Although society was one of the earliest as well as one of the most effective of human achievements we do not yet know what is the correct balance between the rights of communities and those of individuals of which the communities are comprised.

The study of organized behaviour is the study of institutions which have developed as cultural responses to basic human needs. In the universities increasing emphasis is being placed on Geography, in close association with Anthropology, as a fundamental element in the investigation of the relationship between communities and their cultural and physical environments. The rapidly developing science of Social Geography provides an unrivalled approach to the solution of social and political problems; and it is highly significant that Government departments responsible for Town and Country planning and for the development of the Colonial Empire have recognized the need for professional geographers, not only in the preparation of regional surveys and plans for reconstruction, but also as organizers of research. Such official recognition of the importance of geographical training, though welcome, imposes additional responsibility on all who teach Geography and particularly on those who are charged with the education of sixth form and adult students.

The Education Act of 1944 has introduced a further problem, for it demands the organization of four-year courses in Geography in secondary modern and technical schools. Although the work in these schools is largely in the experimental stage the Committee has decided to include a chapter on possible methods and schemes of work in Geography in new types of secondary schools in the hope that these may assist teachers who have had no previous experience as specialists to undertake their important experimental work with confidence. The modification of examination regulations under the new Act, with what should prove to be a consequent relaxation of examination pressure, has necessitated considerable changes in the text, notably the curtailment of the section on Examinations and its relegation to the Appendix. Much in the chapters on Teaching Methods and Equipment has been rewritten and the sections dealing with Visual Aids have been expanded to include some account of recent developments. The chapter on Geography Outside the Time-Table has been extended to include, besides School Camps, School Exchanges and Foreign Travel.

As in the case of earlier editions, the Committee has received valuable aid from non-members whose names will be found on page xvi. The warm thanks of the Committee are due to Mr. J. C. Parrack, who has acted as honorary secretary and to Mr. C. H. Saxelby, who has again carried out a responsible and exacting task as editor.

1952 L. B. Cundall,
Chairman of Revising Committee.

ADDENDUM TO
PREFACE TO THIRD EDITION

The Revising Committee wish to record their deep appreciation of the services of Mr. L. B. Cundall who has died since the PREFACE TO THE THIRD EDITION of this *Memorandum* went to press. He was Chairman of the Original Committee and of the Revising Committees for both the Second and Third Edition. Despite ill health in recent years he did not spare himself in work which he considered would further the aims of the Committee. Apart from his vigorous and genial chairmanship of meetings, his own contributions to the *Memorandum* were of the greatest value. His wide knowledge of geography teaching in all its aspects and conditions and his extensive acquaintance with experts in various branches of the subject were placed unreservedly at the service of the Committee, and were of the utmost importance in ensuring that material was accurate and authoritative. His death is a grievous loss which the Committee feel most deeply, and they especially regret that he did not live to see the completion of the work to which he gave so much.

The Committee have felt, too, that a more adequate acknowledgement should be made of the outstanding services of the honorary secretary, Mr. J. C. Parrack, and it was the wish of Mr. Cundall that a note to this effect should be added to his *Preface*. In spite of the heavy calls on his time from other Committees of the Association, Mr. Parrack has given himself whole-heartedly to the preparation of this edition of the *Memorandum*. His energy and resource, his wise counsel and close co-operation in the editorial work have been invaluable, and his important contributions have done much to bring the book up to date.

ADDITIONAL ACKNOWLEDGEMENTS

The Revising Committee wish to acknowledge the kindness of the Geographical Association in allowing its published matter to be freely drawn upon and of the Derbyshire Education Authority in allowing use to be made of the pamphlet on its Schools Museum Service.

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CHAPTER I

THE POSITION OF GEOGRAPHY

1. As a subject of the Secondary School curriculum Geography has experienced many changes in regard to both content and method since the beginning of the century. Among circumstances which have affected its development are the crystallisation of opinion as to the scope and content of Geography, its recognition by the Universities as a subject for a degree course, and the growing interest it has aroused, an interest which was apparent before the First World War, which developed during the inter-war years, and which expanded further as a result of the Second World War. This development has by no means reached its final stage, but it may certainly be said that Geography has gone far along the road to recognition of its primary importance in the curriculum of the Secondary School.

2. It should not be taken for granted, however, as too many writers seem to imply, that Geography as we now think of it is a product entirely of this century, or that it was till quite recently a mere mass of dry bones, awaiting the call of to-day's prophets to bring them to life. The change that has come about is not so much in the plans or methods of the workers in the field; it is mainly in the treatment of the subject in the school and in the attitude of the public outside. As long as Geography was treated as mere description, a mass of unconnected details to be learned by heart, an "English Subject" to be taught by the odd man of the staff—so long was it the Cinderella of school subjects, despised if not hated alike by those who had to learn it and by those who had to teach it against their will. But the general attitude towards Geography in school, along with public opinion as to its importance and usefulness, has greatly changed, and there are now few advocates of the subject faint-hearted enough to acquiesce in the limitations

still put upon it in those quarters where deference, which has no longer any justification, is paid to an imagined hostile opinion.

3·1. More than a hundred years ago, Humboldt, Ritter, and Lavallée were laying down the principle of the interdependence of human life and natural phenomena. In 1836, the last-mentioned wrote a Geography, mainly intended for military students, which was based on the natural regions of the continents as defined by their watersheds, and which abandoned description by political divisions. This was published in English in 1868.

3·2. It is more than sixty years since the Royal Geographical Society first encouraged Secondary School Geography by offering a prize: and appreciation may here be recorded of the Society's practical interest in geographical education shown in recent years in a variety of ways. It has set up an Education Committee, which has formed a Joint Committee with the Geographical Association for matters concerned with the provision of pictures and all types of visual aids. It has also held a conference with representatives of publishing houses concerning the provision of better geographical books, especially more advanced ones of good literary quality. It arranges annual Exhibitions which are visited by a number of schools, and has instituted a Travelling Fellowship in Geographical Research.

3·3. In the 'eighties and 'nineties of the last century a great impetus was given to Physical Geography and its practical study in schools and evening classes by the inclusion, at the instance of Sir W. de W. Abney, of Physiography as a separate subject in the Syllabuses of the Department of Science and Art at South Kensington. The term was taken to signify enough of the elements of Mechanics, of the Chemistry and Physics of air, fire, water, etc., and of Geology, Astronomy, and Meteorology to explain the phenomena of everyday experience.

3·4. The introduction of Physiography was not long in exercising a profound effect on School Geography. Interest having been once aroused, questions of outlook, point of view, special method of approach, etc., came into prominence; the "concentric" and "comparative" methods in several varieties were preached as gospel; and Economics, Folk-lore, History, Pre-history, and Psychology were each put forward as the true guide for the teacher of Geography.

3·5. The most enduring effect, however, was wrought in 1905 by Herbertson's Synthesis of Natural Conditions to define Natural Regions. A man trained in many sciences, he drew together their results to form a picture of Climate, Vegetation, Animal and Human Life, which, while it accounted in reasoned fashion for the unity of our environment, also allowed for its variations according to our location on the earth's surface. Though modifications have had to be made in the details of his system, and though such matters as order of study have given rise to endless discussions and disputes, Herbertson may fairly be described as the father of modern Geography in this country: and it is in no small degree due to his inspiration that School Geography owes that re-birth into fresh and vigorous life which has enabled it to justify its claims to a prominent place in the curriculum.

4·1. The advance of Geography in the Secondary School since the beginning of the century has been so great that the student of to-day may well feel that the following paragraphs make rather strange reading. These paragraphs give briefly, in quasi-historical fashion, an account of some of the difficulties and developments during this period of growth and consolidation.

4·2. The lack of trained geographers as teachers has, in the past, been a fundamental difficulty in promoting the claims of Geography as a Secondary School subject. The expansion of Geography at the Universities after the First World War was, therefore, of the first importance, and it is true to say that without the building up of the subject at the University stage and the increasing body of qualified teachers entering the schools Geography would still be—and probably rightly—a school subject of little significance. The provision of University Chairs and Departments has gone on apace both at home and in the Dominions, and some Readerships have been established in specialised studies such as Climatology and Historical Geography. In addition to providing the schools with a stream of Geography graduates, whose numbers are, however, still inadequate to the need, the Universities have been responsible for a great increase in geographical literature.

4·3. It is probable that this development of the subject at the University has affected its status in the schools less than it has affected its content, for Geography, as a subject of the curriculum, has lacked in the past the stimulus of University scholarships. Rightly or wrongly, headmasters are prone to give more attention to a subject in which their best pupils may secure a scholarship at a University than to one for which almost no opportunities of this kind are provided. Oxford and Cambridge set a standard in this respect and it is a matter of interest that Cambridge awarded its first open scholarship in Geography (at St. Catharine's College) in 1930, and Oxford offered its first (at Jesus College) in 1933. With the many scholarships in Classics, Mathematics, Languages, History and Science, however, there was little encouragement to headmasters to provide sixth-form courses in Geography. To-day this difficulty regarding scholarships has been much mitigated owing to the provision of State and other scholarships awarded on the results of the several School Examinations. Really good Geography candidates share in these awards, the increasing number of which places the subject in a reasonably satisfactory position.

4·4. Another handicap to the progress of Geography has arisen from the fact that few headmasters have had any special interest in the subject. This phase is passing, and it is now out-of-date to say, as we could in the First Edition of this Memorandum, that the number of headmasters of public Secondary Schools whose special interest as assistant masters was Geography could be counted on the fingers of two hands. To-day most headmasters give the subject an adequate place in the school curriculum, but it is a matter of experience to many teachers that an initial lack of interest on the part of a headmaster has been a serious handicap to its proper recognition.

4·5. The attitude of the Ministry of Education has changed substantially in recent years. In the Public Schools, relatively free from the influence of the Ministry, Geography has still a long road to travel, in spite of the outstanding work done by one or two Geography masters, before it will achieve a prominence comparable with that of what may be called "vested interests." In Secondary Grammar Schools recognised by the Ministry the influence of that body on the position of Geography is not easy to assess. The regulations have always insisted upon Geography appearing in the curriculum, but it is not clear that its claims have received any special attention. The only special publication by the Board in connection with the teaching of Geography appears to be the *Suggestions on the Teaching of Geography in Public Elementary Schools*, published in 1905. If the subject needed "Suggestions" for its teaching in Elementary Schools, it is not easy to see why suggestions, in some form or another, have not been forthcoming for teaching the subject in Secondary Schools.

4·6. In this connection, it may be as well to draw attention to a paragraph in the Board of Education circular, 826 (1913). Under the heading "History and Geography," this states (p. 31):

> "It is not necessary that separate instruction in both History and Geography should be given in all forms. In schools in which pressure on the time-table renders it necessary, a shortened course in Geography, terminating at the age of fourteen or fifteen, may be accepted. In this case, however, the course must be so arranged as to include the fundamental principles of Physical and Mathematical Geography."

It is understood that the Ministry takes the view that this direction is in effect a dead letter; nevertheless, it has never been withdrawn or replaced by any new regulation. It is possible that inspectors and headmasters appointed in recent years are unaware of its existence, but it must be known to many in authority and, while it remains, the attitude of the Ministry can scarcely be regarded as satisfactory ; especially as it is known that the principle has been acted upon in the fairly recent past. Moreover, the attitude suggested in the last sentence of the paragraph is quite out of harmony with the modern teaching of the subject. The time has surely arrived when the Ministry should issue new regulations which should make it quite clear that every Secondary School must provide a full course in Geography.

4·7. Again the Secondary Branch of the inspectorate of the Ministry, which inevitably exercises great influence on the Secondary Schools, has not until quite recently had any member with special qualifications in the subject. While it is not suggested that inspectors have no regard for subjects of the curriculum other than those in which they are especially interested, it is difficult to escape the conclusion that in the competition of subjects for an adequate place in the curriculum—a strenuous competition that is well known to harass those in educational authority—the claims and interests of Geography have hardly received the attention they deserve. It can scarcely be regarded as reasonable that competent and often highly qualified teachers of Geography should be inspected and reported upon by inspectors with little or no practical experience of the subject, when inspection of, and reports upon, teachers of such subjects as Latin or Mathematics by officials without special qualifications in these subjects would justly be resented. It has been argued that there is no anomaly here in regard to Geography, because it has not fully "arrived," and because so many teachers of Geography have themselves no special qualifications in the subject. When, however, we consider that Geography rivalled in importance a traditional subject like History at School Certificate Examinations approved by the Ministry,[1] it was not unreasonable to expect that the Secondary branch of the inspectorate, numerically very strong, should include some who are specifically qualified by training and experience in the subject. It is gratifying to note, however, that in 1944 one of its number was appointed Staff Inspector for Geography, with the specific task of supervising Geography teaching in its policy and inspection aspects. Recently, a substantial number of trained geographers has been appointed to H.M. Inspectorate.

5. It is clear that many of the handicaps to the progress of Geography are being modified and that certain favourable factors are operating. It is of considerable importance that at some Universities Geography may be taken either on the Arts or the Science side, a fact which, besides opening the way to the study of the subject by a wider circle of University students, is a recognition of the humanistic character of Geography and of its affiliation with both literary and scientific classes of subject. Recent regulations at the University of London may make it difficult for students to take an Honours degree in Geography on the Arts and Science sides, and this will only in part be offset by the important position the subject is given in connection with Economics and Social Studies, a field, it may be said, in which the practical applications of Geography are likely to become increasingly important. In Civil Service Examinations investigation has shown that, far from Geography being in an inferior position in relation to other subjects, it has a status in regard to which few further claims could reasonably be made.[2] These factors, however, operate mainly among that limited number of pupils who intend to proceed to a University or to enter the Civil Service, and have little relation to the question of the position the subject should occupy in a well-balanced Grammar School course.

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[1] See Note at the end of this Chapter.

[2] See *Geography*, Spring, 1928; also see Chapter II, para. 2·2 of this Memorandum, and Appendix II.

6. It will be clear from the foregoing paragraphs that important factors which affect the "status" of a subject in the curriculum, quite apart from its claims on other and more educational grounds, have tended on the whole to hinder rather than to advance the progress of Geography in the schools. Nevertheless, Geography to-day is recognised as being an essential subject in the normal Secondary School course and as having made great strides at the Higher School and Scholarship level. This position has been achieved by Geography on its merits as a subject of great educational value and importance; although it must be admitted that it has not lacked its propagandists, and owes much to the activities of that vigorous body, the Geographical Association.[1]

7. Taken as a whole, the progress of Geography has been coincident with a revolutionary change in its outlook, content, and method. Within a generation it has seen its status transformed from that of a subject not very clear as to its scope or as to its *raison d'être* in the curriculum to one broad in its outlook and sure of its ground as an essential element in the educational economy. And whereas at the beginning of the century it was taught largely by rote methods as an informative subject dealing mainly with unrelated facts and neglecting visual and practical methods, it is to-day, at its best, a subject of vital interest, appealing to the brain, the eye, the ear, and the hand, and making real and valuable use of its own special instrument, the map.

8. The change was preceded by a large measure of attention being given to physical geography, as is shown by examination papers of thirty or forty years ago. More important still has been the subsequent development of those aspects of Geography which are commonly described as regional, economic, and human. But what, in effect, has happened is that Geography as a Secondary School subject, while incorporating whatever was best in the older methods and utilising its own synthesis of physical, economic, and other "branches" of Geography, has come to base itself mainly on the study of man's environment, made vivid and real by the application of practical and pictorial methods, and affording valuable intellectual training, within the bounds of its own subject-matter, by laying emphasis on the study of inter-relationships. It has indeed changed its viewpoint from the consideration of the world as the theatre of natural phenomena to that of the world as the home of man.

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[1] A brief but valuable report on the position of Geography in Secondary Schools was published on behalf of the Secondary Schools Committee of the Geographical Association in its quarterly publication, *Geography*, Summer, 1929.

9. The importance of Geography as a vital element in education is now fully recognised by enlightened opinion so that to-day it may truly be said that no Secondary School course can be regarded as complete or properly balanced unless adequate provision is made for the study of the subject up to the normal school leaving age. It is also being increasingly realised that some aspects of geographical study have an important bearing on the training of all pupils beyond this stage.

NOTE.—Table of Percentages of Candidates taking Geography at the more popular External Examinations.

	School Certificate	
	1939	1946
Cambridge Local	75·3	69·6
Central Welsh Board	76·7	76·1
London	70·1	74·5
Northern Joint Board	69·6	71·2
Oxford Local	78·8	82·3

In the above examinations, Geography was taken in 1946 by some 69,000 candidates, nearly three-quarters of the total.

	Higher School Certificate	
Cambridge	11·3	15·5
C.W.B.	22·8	20·8
London	9·9	20·1
Northern Joint Board	14·1	16·5

These latter figures relate to Geography taken as a main subject by some 3,000 (excluding Oxford) candidates.

The percentages have remained almost constant since 1946.

CHAPTER II

THE AIMS AND SCOPE OF SECONDARY SCHOOL GEOGRAPHY

What is Geography?

1·1. IT is not intended here to attempt a comprehensive answer to this question; the ground has been covered on many occasions by specialists. It is intended, rather, to suggest the varied subject-matter of Geography, the branches of specialised study contained in it, and the principle which gives unity to the whole. From this brief discussion of Geography as a science, which must necessarily determine in its broad outline the content and method of School Geography, it will be possible to see how it can best be adapted to the school curriculum so that a well-rounded course, complete in itself, adapted to the mental development of the pupil and harmonising with the general educational objects of the Secondary School, may be developed.

1·2·1. The word Geography signifies a description of the earth. The etymological meaning is not in itself very helpful, and needs, as is commonly the case with etymological meanings, a good deal of elaboration. Nineteen centuries ago, Strabo noted that the subject envisaged what would now be called Human Geography as well as Physical, Astronomical, and Biological Geography; these principles, however, were forgotten, and it is only in comparatively recent times that they have been revived. Too often what passed as Geography was a miscellaneous collection of general knowledge of many parts of the world, with perhaps some uncorrelated facts from Astronomy and Physics, while the globe that figured in most educational institutions was often more ornamental than useful.

1·2·2. Dr. Hugh Robert Mill edited in 1899 a volume called *The International Geography*. The book was somewhat novel in character, but was compiled with great care, and contained chapters on special aspects of Geography, while the treatment of the continents and of the political divisions showed that by this time—thanks largely to pioneer work by Dr. Mill himself—the subject was widening its interests and modifying its methods. In his preface Dr. Mill refers with regret to the paucity of "standard" books on Geography. In the first chapter he deals with the "Departments of Geography," each representing an aspect from which the whole may be considered, and incorporates a diagram labelled the "Pyramid of Geography" to which the following description is attached: "A pyramid, broad based on the smooth hewn blocks of mathematics, rising through tiers of firmly laid stones from the quarries of the physical sciences and the less sure products of biology and anthropology to the irregular courses of political geography and the rubble heap of commercial geography which caps if it does not crown the edifice."[1] It is interesting to observe his tilt at Economic Geography, a department which has since become of profound importance. His definition of Geography is as follows: "Geography is the exact and organised knowledge of the distribution of phenomena on the surface of the earth, culminating in the explanation of the interaction of man with his terrestrial environment."

1·2·3. We may contrast with this the definition given by Dr. Marion Newbigin in *Modern Geography*, published in 1911. She says: "Geography deals with the surface relief of the earth, and with the influence which that relief exercises upon the distribution of other phenomena, and especially upon the life of man." Her chapters deal with surface relief, erosion, ice-work, climate and weather, plant geography, animal life, cultivated plants and domestic animals, races of mankind, the distribution of minerals, and the location of industries and of towns. Here the wide range of Geography will be apparent, but while the fundamental importance of relief would be admitted by all geographers, the prominence

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[1] A more apt simile, in the light of modern ideas on the subject might be the "Tree of Geography" illustrated on p. 12.

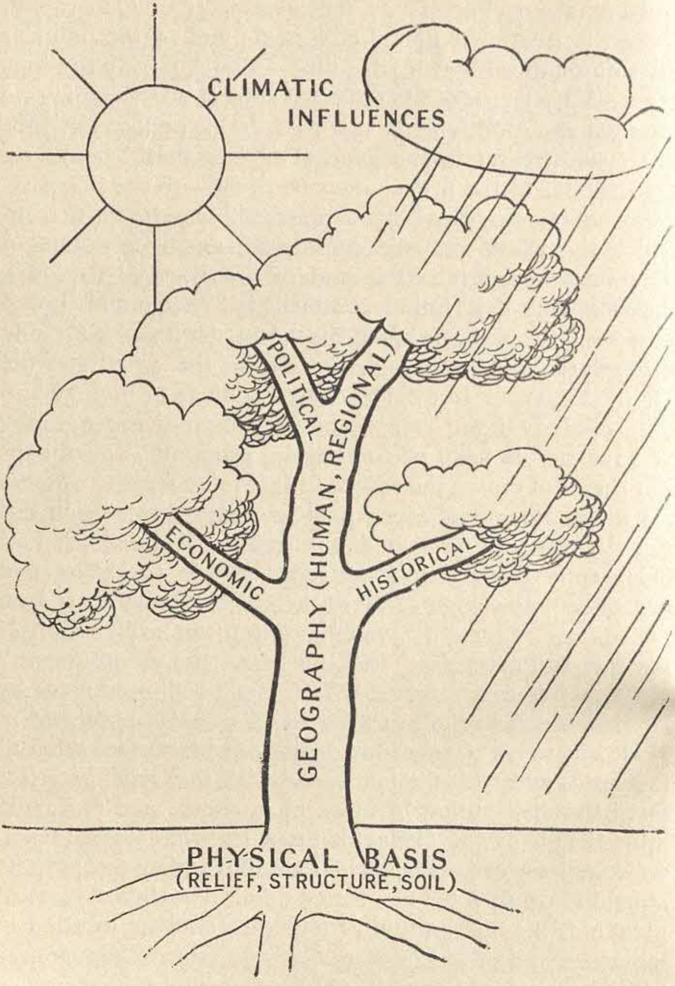

FIG. 1.—THE TREE OF GEOGRAPHY

"It has its roots in the soil of Physical Geography, and receives life from the study of climate. Its branches cover every phase of human activity."

given to it might well be regarded as excessive. On the other hand, the appearance of such topics as the location of industries and of towns and the emphasis upon the life of man show a widening conception of the subject.

1·2·4. As a third example of an attempt to envisage the content and method of Geography, we may take *An Introduction to Geography*, by Prof. H. J. Fleure, published in 1929. He begins thus:

"Geography as a study is one of the most definite outcomes of the desire and need which men feel for a vision of the world around them, a need both for guidance in action and for investigation of truth . . . it has usually been concerned with the piecing together of knowledge of many different kinds. In a sense, most of the specialised sciences can be considered as offshoots of Geography, and there is thus a widespread overlap between geographical and other studies, and the delimitation of the province of Geography is unprofitable."

He goes on to suggest that the influence of Darwin in emphasising the reactions between life and environment, together with the emergence of vast problems in political, economic, and sociological relationships in the modern world have vastly expanded the province of Geography, especially as the major problems of the exploration, surveying, and cartography of the earth's surface have been solved, and he therefore lays emphasis upon Geography as "the study of men in their environment." The chapters deal with the Geography of the explorer, the map, the study of distributions, the study of regions, and the interrelations of regions. The range of topics that he touches upon is almost universal in its comprehensiveness: they vary from the mediæval Mappæ Mundi to dot maps and aerial survey; from the Greek City States to obscure races in the East Indies; from the influence of the Manchester School to the Council for the Preservation of Rural England; from the distribution of the beech in Europe to the biological significance of the everted lips of the negro; from prehistoric cultures to modern industrial communities.

1·2·5. At this point it seems desirable to refer to tendencies abroad which have influenced this evolutionary process, this progressive enlargement of their subject-matter, that is so marked a feature in the work of representative British geographers. We may note in particular the school of Vidal de la Blache, whose *Tableau de la Géographie de la France* (1908) is a classic study in the elucidation and description of the distinctive characteristics of different regions from the human point of view, and the work of Jean Brunhes who, in his *Géographie Humaine* (1910), presents a systematic treatment of the principles and "method" of the subject, with a wealth of illustration from detailed studies of human activity; though we may notice that earlier than this the late Sir Halford Mackinder, P.C., had in 1903 already published *Britain and the British Seas*, a volume which shows admirably the selective and unifying mind of the trained geographer applied to the work of regional sub-division.

1·2·6. The fact that emerges from the above discussion is that, while it may not be possible to find a rigid definition of Geography that would be acceptable to all (it is not perhaps necessary to attempt such a definition; it is probable that an acceptable definition of, for example, History would be at least as difficult to find), there is ample agreement on the essentials. Geography is a unifying science; the raw material it deals with is derived largely from other sciences and studies; it deals with the material in its own way, seeking and discovering the interrelation of phenomena and the interaction between man and those phenomena; its special viewpoint is man in relation to his environment, and its particular instrument is the map. Geography aims at a synthesis; as has been said, "exploration, surveying and cartography, evolution of the earth's surface, climate study . . . and the relations of plant, animal and human life to their environments . . . are all needed to make the picture of Man and the World."

1·3. An important feature to be emphasised is the significant development of Regional Geography, that method of approach which seeks to analyse and describe the characteristics of such regions as it may be found possible to delimit. The regions may be large—as the major climatic regions of the world discussed by Herbertson in his famous paper in 1905—or they may be small—as, for example, what is commonly called in School Geography "the home region." The many excellent regional studies that have been made show how illuminating this method of geographical enquiry may be.

1·4. Useful as the regional method is as an instrument of analysis, the fundamental unit that Geography deals with is the world; and the existence of what are commonly referred to as "World Problems," the growing feeling of the unity of the world in an economic sense and its possible development into a unity in a political sense, are matters which properly come within the sphere of geographical discussion. "World Relations" is a term that covers a multitude of questions that are of urgent importance to the citizen of the modern world, and Geography may rightly claim to have a contribution to offer towards their elucidation.

1·5. Like other subjects of study, Geography lends itself to specialisation. Just as we find historians with special interest in Political History, Constitutional History, or Economic History, so we find geographers specially interested in Physical Geography, Historical Geography, Political Geography, Economic Geography, or some other aspect of the subject in relation to which a collateral study offers a special contribution.

1·6. The application of Geography to practical affairs has greatly expanded in recent years, especially in the sphere of economic, regional and planning problems. In this field the geographer collates facts, analyses distributions and suggests solutions. It is not surprising that the research officers and staff generally of the Maps Office of the Ministry of Town and Country Planning consist almost exclusively of trained geographers. The Second World War proved the value of geographical training to the meteorological services and in the important work of interpreting aerial and other photographs.

1·7. With this brief survey of the scope of Geography as a study of importance from both the economic and the human points of view, it is possible to deal with the particular problem of its content and function as a subject of the Secondary School curriculum.

Secondary School Geography

2·1. The character of the school course in a subject must be determined by the reasons for which the subject is placed in the curriculum; these reasons will influence the aims of the teacher in his teaching and in turn the content of his syllabus and his work in the classroom. The place of Geography in the Secondary School curriculum must ultimately be determined by the value of its contribution to the development of culture and civilisation; but as the study of Geography enables the mind to appreciate the relationship between human activities and man's physical environment, its position is somewhat strengthened by the fact that the knowledge acquired may be applied to the everyday business of life.

2·2. That the study of Geography provides useful knowledge is more frequently recognised than is its function as an element of cultural education; and candidates for admission to certain branches of the civil, military, and naval services of the Crown and to membership of several professional associations[1] are compelled to prove that they possess some knowledge of Geography. It is obvious, however, that the geographical facts of peculiar interest to the members of one profession will by no means be identical with those applicable to another. Shipbrokers, persons engaged in insurance operations, accountants, bankers, cartographers, as well as local government officers, military

[1] See Appendix II, *Geography in After-School Life*, for further details.

engineers and staff officers, and those responsible for the organisation of civil transport, colonial administration, overseas trade, and diplomatic relations with foreign countries will each select geographical material appropriate to their own point of view. On the other hand, the detailed syllabuses of the examinations conducted by the professional and other bodies concerned reveal little that can be used as a foundation for the work in Geography in Grammar Schools. Thus we are forced to the conclusion that a purely utilitarian aim, such as the preparation for a public examination or for entrance to a profession, cannot be made the guiding principle of the geographical scheme without doing a great deal of harm, both by eliminating from the subject-matter many important aspects of Geography which have no direct bearing upon professional and other examinations, and by causing the method of presentation to assume a stereotyped and one-sided form which allows little or no room for experiment or for the arousing of a lively interest.

2·3. There is, however, no hard-and-fast line between the "utilitarian" and the "cultural," nor is it intended to imply that what is "utilitarian" may not be dealt with in school in a purely educational way; but it is, indeed, from the cultural and humanistic viewpoint that Geography is seen to have a specific and outstanding function in the school curriculum.

2·4. Of the subjects in the curriculum of the modern Grammar School, the position of which is justified on almost purely cultural grounds, History is perhaps typical. It may be said at once, however, that no real understanding of History is possible without an appreciation of the fundamental considerations of physical environment which provide the stage for History. Geography can and does make use of some of the same "facts" as History, but it uses them in space relationships rather than in time relationships, and from the cultural point of view it is at least as important to be acquainted with the former as with the latter. It would appear to be evident, therefore, that the cultural value of Geography is quite as great as that of History, while Geography deals more with fundamentals.

2·5. The spread of literacy, the rising standard of education, the development of communications in all their aspects, the insistent world problems that confront the citizen (reflected increasingly in his newspaper), the growing consciousness of the unity of the world in the sense of the interdependence of its various parts—these are the conditions which give to Geography its place and its opportunity in the curriculum. As a cultural subject, Geography functions by presenting the world we live in as a coherent whole, and by providing an indispensable background for the citizen's proper appreciation of the peoples, activities, and happenings of the modern world.

2·6. The core of Geography is to be found in the study of the interaction between man and his environment. Such a study yields examples of great variety: in one region the response to environmental conditions is at a relatively low level, as with the pygmies of the Congo Basin, where the physical conditions seem obviously to limit human activity; while in another the reaction is exceedingly complex, as in a region like the London area, the "environment" of which may be regarded as including almost the whole world, while the "response" involves much in the nature of human control and organisation and the deliberate modification of the physical environment to suit human needs. Between these extremes the world provides many types of human response which, if not conditioned by the physical environment, are at least largely modified by it. It may therefore be regarded as axiomatic that if Geography is to give a sympathetic understanding of the lives of peoples in relation to their environment it must proceed on a regional basis.

2·7. Such a regional study must inevitably suggest the interdependence of the peoples of the different parts of the world and provide a body of knowledge which will throw light upon many questions of national, imperial, and international interest. The distribution of the world's resources in food and raw materials, questions of frontiers and minorities in Europe, problems of tropical agriculture, of colonial policy and the status of "subject races," population problems—such matters as these come necessarily within the scope of geographical study, and though it is not suggested that any formal or didactic treatment is either necessary or desirable, it can be said that, in a degree appropriate to the limitations of a school course, they must receive their due share of consideration. The study of Geography helps to give a proper setting to those matters of importance in the modern world in which the citizen is, willy-nilly, interested, and thus, again, it offers a happy combination of utilitarian and cultural values.

2·8. Another aspect of Geography as a cultural subject is to be found in its character as a "synthetic" study, deriving much of its content from other subjects, some of which are, and others are not, found in the normal school curriculum. Geography has been described as a "bridge" subject, in the sense that it provides a link between subjects that may be termed scientific and those to which the term "humanistic" may conveniently be applied. In so far as it claims to be a science, it must be regarded as a "human" science, taking facts and conclusions from the physical sciences and relating them to human life. Geography has obvious relations with History, Physics, and Biology, and less obviously with Language, Literature, Mathematics, and other subjects: it shows the effects, for instance, of physical and biological factors upon human activity and, on the other hand, of human factors upon natural phenomena. Indeed, the "broadmindedness" of Geography is one of its most valuable characteristics, although the governing consideration of "man in relation to his environment" is to be constantly kept in mind, and any matter drawn from other subjects which is brought into consideration must be put into its proper place as helping to that understanding. From this point of view, Geography has a function of the

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greatest importance, in that it gives the curriculum a proper gradation from the scientific to the humanistic side.

2·9. Its relation to History is of special interest. That the two subjects, History and Geography, should be "friendly" and correlated would be admitted by any good teacher of either, and it is therefore to be deprecated that in some schools they are made alternative subjects; for this creates difficulties at the sixth-form stage and at the same time limits the educational functions of each. There is also to be noted a tendency on the part of some headmasters to introduce History-cum-Geography, usually with a view to securing further time for subjects for which adequate provision has already been made. Moreover, there are some who believe that History and Geography should be combined on educational grounds, and certain books have been offered to meet this alleged need. These for the most part fall far short of the standard set many years ago by the late Sir Halford Mackinder in his little books, *Our Own Islands* and *Lands Beyond the Channel*, and the Geography in them goes little further than the provision of a few maps illustrating the Age of Discovery. The basic fact is that Geography has its own special work and function. It enters into fields that would be denied to History-cum-Geography, for example: outdoor work in topography, soils and settlement, map work in the field and in the classroom, and the study of man in his environment in the different regions of the world.

2·10. Allied to the History-cum-Geography school are those who lay special emphasis on the mutual understanding of nations, the study of peoples and populations independently of the physical geography of their lands, and the stressing of world relationships rather than regional geography. There are also those who attach special importance to the study of the great cultures of the world (Europe, the Far East, the Moslem World, etc.) and their contacts and interactions. Few would deny the interest and importance of such studies, but it is necessary to recognise that they represent "departments" of the subject, which, in many respects, are better suited to adult study than to the normal Secondary School stage.

2·11. Within its own sphere Geography provides training in many directions, training of both an intellectual and a practical character, though it is not suggested that there should be any divorce between these two aspects. Among the revolutionary changes that have taken place in the teaching of Geography are the increasing emphasis upon correlations that may be established between different distributions, and the practical turn that has been given to the study of the subject in connection with observational work and the study of maps, activities for which the properly equipped geography-room provides the necessary facilities. Thus the modern provision for geographical teaching demands an appropriate equipment of instruments, maps, pictures, and other material, as well as of books arranged on a library basis.

2·12. On the more practical side, Geography provides many opportunities for observational work, much of which is properly carried out beyond the confines of the classroom. Observational work on the sun and the shadows it casts, or on meteorological phenomena—temperature, winds, rainfall—is a common feature of the geographical course; while the home area provides many opportunities for the observation of geographical conditions the character of which necessarily varies with the locality of the school, so that in some areas the opportunities may be dominated by the Physical Geography, in other areas by the Human Geography. But every home region, whatever its character, may be studied in this way, and such studies may be supplemented by excursions, school journeys, or more elaborate and organised observations and correlations such as are involved in regional survey or in connexion with the Land Utilisation Survey. Such activities provide an important practical basis for the better understanding of regions that lie outside the experience of the pupil, especially when corre-

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lated, as they must be, with map-reading. The use of the Ordnance Survey maps is now widespread, and it may be said, in passing, that the magnificent series of maps on various scales published by the British Ordnance Survey provide a basis not only for much invaluable practical work, but also for the proper understanding of the very small-scale maps which dominate the school atlas.

2·13. Other activities which provide training of a practical and intellectual character are associated with the study and comparison of distribution maps, and the examination and interpretation of pictorial material. Geography has been described as the study of distributions, and if the subject is to be studied, as it ought to be, on a regional basis, if human activities are to be placed in their proper setting, the regional division must be emphasised by the correlation of physical, climatic, economic, and population distributions as exhibited by their appropriate maps. The representation and interpretation of statistics provide another means of emphasising Regional Geography: the statistics may relate to any one of the distributions with which Geography is concerned and provide a teaching aid of very great value.

2·14. Teachers of Geography have done much pioneering in the field of visual education and emphasis is being increasingly laid upon the use of pictorial aids. These are indeed an essential feature of geographical teaching, for it is quite impossible to humanise the subject and to give it reality without the appeal to the eye. No verbal exposition, however brilliant, can take the place of pictures selected from a geographical point of view: which does not mean that æsthetic considerations are necessarily excluded. The widespread use of lantern slides and of the epidiascope is evidence of the value of associating book-work and oral teaching with illustrative material. The cinematograph has established itself as another ally and the development of film strips is bringing further assistance. There is, of course, an appropriate technique attaching to the use of each of those aids, for pictures are susceptible of yielding their full value only when the features they illustrate are accurately observed and interpreted.

2·15. Illustrative material is not confined to pictures and lantern slides. The teaching of Geography involves reference to many things which are outside the experience of the pupil, and it is clearly of the greatest value to be able to show actual examples of such things. No school has the resources of a public museum, but every school can have a collection of common materials and specimens which may give point to many lessons. Such collections may take many forms; they may be of temporary or of permanent character, and their use may well be supplemented by visits to museums.

2·16. It will be apparent from the foregoing considerations that the teaching of Geography calls to its aid many forms of appeal to provide the mental background that is one of the justifications for the inclusion of the subject in the general education of the citizen. In the hands of the skilful teacher they promote the important objects of leading the pupil to avoid hasty and mistaken conclusions based upon ignorance or prejudice, and of helping to give him a sympathetic understanding of the environments and activities of peoples in widely different regions. Geography thus provides him with an intellectual foundation upon which may be built a coherent and broadminded appreciation of the world as a unity, of his homeland in relation to that wider world, and of the environment (using the word in a very broad sense) in which the history of his generation is being determined. While complete agreement may not be accorded to the following definition of the function of School Geography,

> . . . "to train future citizens to imagine accurately the conditions of the great world stage and so help them to think sanely about political and social problems in the world around them,"[1]

we may note that the statement has two important implications: it suggests, in the first place, an aim which brings Geography into line with the objects of all education in the full sense of the term, and, secondly, by the use of the word "conditions" without qualification, suggests the catholic character of the subject-matter which is laid under contribution to achieve this end. If education for citizenship—whether of a country or of the world—is included in the connotation of the term "education," it is difficult to believe that Geography can be rivalled by any other subject of the curriculum in the contribution it can offer.

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[1] Fairgrieve, *Geography in School.*

2·17. There are some who have carried the "citizenship" view of Geography to even greater lengths. Stressing the importance of the subject as the basis of a group of social sciences they suggest that its teaching should be directed mainly towards the development of interest in and feeling for citizenship, and make little of the physical aspect. They are apt to point to certain developments in the Second World War, particularly the work of the Army Bureau of Current Affairs, which published a Map Review, continued by the Bureau of Current Affairs, now defunct, and to the developing geographical outlook of citizens generally as a result of the almost world-wide upheaval. The growth of planning schemes and the importance of the study of distributions of all types of social phenomena are regarded as suggesting that here lies the principal interest of Secondary School Geography. Generally speaking, teachers of Geography fully realise the bearing of their subject on the problems of citizenship, but the comment needs to be made that the roots of Geography are in the physical basis, that "the conditions of the great world stage" are largely in the earth, the air and the sky, and that the synthesis at which Geography aims must have due regard to this.

2·18. For the purpose of this Memorandum, the problem of the scope and content of Secondary School Geography is mainly concerned with the course that leads up to the work of the forms from which the normal pupil leaves the school, and the discussion of such a course need not have regard to the fact that an examination may be taken at the end of it. There are, in fact, many teachers who have pursued a course of study leading to the School Examination without any particular regard to the examination syllabus, and there is no reason to believe that the geographical work suffered in consequence, or indeed that the examination results suffered. Under present regulations no competent teacher following his own course in his own way need concern himself with the requirements of an examination syllabus, provided his course is based upon sound principles and is comprehensive in character.

2·19. It is no doubt a trite saying that the course should be complete in itself; it is more important to urge that it should be well balanced. How this is to be effected will be discussed in the next chapter, but the implications of the general principles may be simply stated to be these: that the whole world should be studied; that while no region of the world should be excluded from the study, the more important parts, or those that permit of fuller geographical exposition, should receive the greatest attention; that no specialisation in "departments" of Geography should be introduced; that the particular instrument of geographical expression, the map, should receive adequate attention; and that practical work should be continuously maintained.

2·20. By gathering together the threads of knowledge obtained from the experiments of natural science, from the investigations of history and language study, and, indeed, from all kinds of human research, Geography attempts to form the pattern and picture of man's life on the earth; and thus it helps to provide an answer, ever progressing in completeness and usefulness, to the Universal Enquiry which begins for every infant in the cradle with elementary physical experiments on its surroundings, and is being asked by every intelligent creature all its life, namely, "Where am I, and what has the world in store for me?"

2·21. It is this function of Geography as a unifying science that gives it an honoured place in our curriculum.

Its pivotal position is recognised by all who wish to plan a complete system of education, it being assumed that the greater prominence of Geography in the school time-table can be attained without affecting the position of other subjects. As this rôle of Geography becomes more fully appreciated and the facilities for its teaching become more and more commensurate with the needs of the subject—a subject, be it remembered, the content of which is in some degree modified every day by developments which take place in every corner of the globe—it may confidently be expected that Geography in the schools will make an increasingly valuable contribution to the education of the citizen of this changing world.

CHAPTER III

THE SCHEME OF WORK[1]

1·1. THAT Geography deals with such a definite and important aspect of life as the relation between physical environment and human activity is ample justification for the conclusion that, in the words of the Hadow Report, it "should occupy no subsidiary or doubtful position in the curriculum," and that it should by no means be included merely to provide a background for other studies. On the other hand, its unique function as a link between those subjects whose interest is almost entirely humanistic and those whose interest is mainly scientific cannot be ignored. In view of these considerations, it is important that the pivotal position of Geography should be borne in mind when the general curriculum of the Secondary School is being drawn up.

1·2. In itself the Secondary School course in Geography should aim at preparing the pupil for citizenship in a way which will enable him to appreciate the relationship between his own experiences and those of the rest of mankind; and its main object will be achieved if, at the end of the course, the pupil is able to understand man's varying reactions to diverse combinations of physical and economic conditions, and can bring to the study of life's problems that habit of looking to physical and economic influences behind the conduct of human life which is fostered by geographical studies. If the course is to be an important element in the training of a civilised and cultured people, its content, especially in the later stages, should be such as to bring out the interdependence of the races and nations of mankind, whilst its methods should result in the development of the critical spirit and the honesty of purpose which are characteristic of the intellectual world at its best.

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[1] Although this Chapter was originally intended only to cover teaching in what are now known as Secondary Grammar Schools, much of the preliminary matter is applicable to work in all types of Secondary School.

1·3. It is as a means to this end, with the object of providing material for such a liberal study of man's relationships, that the Geography syllabus must be framed. In the preparation of a course suitable for a Secondary School there is no shortage of such material. In fact, the great problem is to avoid overloading the syllabus, and it is the elimination of unessentials which presents the chief difficulty. What appears to be of vital importance in one set of circumstances may appear trivial in others, and the ultimate decision as to whether any particular aspect of Geography should be included must be left to the teacher responsible for carrying out the plan of work laid down in the syllabus. If the teacher is not free to exercise some discrimination in the selection of material, something of educational value is lost, the work becomes stereotyped, and the desire for experiment dies through lack of stimulus.

The Five Years' Course

2·1. Before considering the actual content of the syllabus it is necessary to have a clear idea of the limiting conditions under which the course is to be carried out. The first and most important of these is the stage of intellectual development of the pupil when he is admitted to the course. The new pupil may have already acquired some knowledge of the general principles of Geography before entering the Secondary School, but where it is found that the school entrants are drawn from a wide area, which contains varied types of Primary Schools, under both public and private control, it is generally advisable and always safer to assume that the newcomer knows little of systematic Geography.[1]

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[1] A further problem exists when numbers of new pupils are admitted to the second year of the course.

Throughout the course the mental capacity of the pupil determines the rate of progress, but, judging by educational standards alone, it is improbable that a satisfactory course for Grammar School pupils can be covered in less than five years. In some cases it has been possible to cover sufficient ground in four years to ensure that a considerable proportion of the pupils should pass an examination of the standard of the School Certificate; but the success of a course cannot be measured merely by examination results, and under present regulations there should be no need for such curtailment.

2·2. Although the pressure of examinations should no longer seriously affect the Geography syllabus, there is still the limiting factor imposed by the time-table. It is too little realised, not only by school authorities, but also, in some cases, by teachers of Geography themselves, that the subject is a practical one with a technique of its own, and that it demands an adequate allowance of time if a profitable school course is to be pursued. The time given to Geography in Grammar Schools varies between sixty and one hundred and fifty minutes per week in the first and second years, and between one hundred and twenty and one hundred and fifty minutes per week in the third, fourth, and fifth years of the course. The total time available determines the work which can be done, and the Geography course can scarcely be regarded as susceptible of adequate treatment without a minimum allocation averaging three periods of forty or forty-five minutes a week throughout the course. This is approximately one-twelfth of the time available for the whole curriculum in most schools, and such an allocation must be regarded as just rather than generous.

2·3. Again, before the syllabus can be drawn up in detail, it is necessary to know what parts of the subject-matter lend themselves to the different methods of presentation appropriate to each stage of the pupil's mental development. In the earlier years, the work must be largely descriptive, but, as the powers of expression develop, the work may become increasingly analytical in character and, at the end of the course, the pupil should have formed the habit of "thinking geographically" and be able to work independently of the teacher.

2·4. We shall, therefore, discuss the syllabus under three main headings: (i) the Preliminary Stage; (ii) the Transition Stage; and (iii) the World Stage.

I. The Preliminary Stage

3·1·1. Since Geography is a practical subject with a method of its own, it is necessary to devote the preliminary stage of the Secondary School course to the acquirement of as much of its vocabulary and technique as will enable the pupil to understand and to profit by the use of its special methods and instruments such as the map. Again, the world-wide outlook which it is the object of Geography teaching to develop can be attained only by a steady progression in the mind of the pupil from the familiar to the unfamiliar, from the narrow bounds of the local horizon to an ever wider and clearer conception of the regions beyond. This expansion of the field of mental vision may be effected with the greater sureness and ease the more closely the formation of the necessary vocabulary is correlated with the pupil's own experiment and observation. Hence the study of Local Geography, the essential preliminary to the regional study of the world outside the home district, should go hand in hand with the acquirement of a vocabulary and the development of a technique, and should, as far as possible, form a basis for practical work of all kinds.

3·1·2. The following outline of the work required in the formation of a geographical vocabulary must be envisaged as covering in its entirety a longer period than that represented by the preliminary stage. The suggestions refer to a body of work largely of a practical character to be introduced in the early part of the course, so that the concepts which the pupils attach to the terms commonly used in geographical discussions shall be correctly and firmly established in their minds. The best way to effect this is to let them arise naturally, as far as possible, out of the studies of the Home District and the Homeland; and most of the fundamental ideas relating to relief, direction, position on the globe, and climate can in fact be made to do so.

The Formation of a Geographical Vocabulary

3·2·1. The map is the most distinctive feature of Geography teaching, and it is not too much to say that no lesson in Geography is complete without its use in some form or other. Hence it is essential that the work of fostering methods of geographical thought and expression should be commenced at the outset of the Secondary School course by introducing the pupil to such geographical ideas as will enable him to read and understand a simple map. Fortunately, the concepts of direction, scale, and relief can be evolved as the results of simple experiments. The points of the compass are easily learnt; the meridian can be found by reference to the sun's shortest shadows or to the pole star; and the use of the magnetic compass at once arouses the pupil's interest when he finds that the compass needle does not point to the true north. The notion of scale will be introduced by practical work, and it will generally be found that only when a pupil has completed a map to scale from his own measurements does he begin to understand what a map really means. The ideas of direction and scale may be combined by simple exercises involving the orientation of maps and the measurement of distances by their use.

3·2·2. In elementary work on direction and scale it is highly advisable that the Geography teacher should consult and work in conjunction with the teacher of elementary practical geometry: thus much waste of time by overlapping, not to speak of confusion in the mind of the pupil, may be avoided.

3·2·3. It is not necessary to spend much time on practical surveying, but the preparation of a simple plan of the school field by the chain and staff or by the plane-table method does enable boys to appreciate something of the accuracy of working and attention to detail which are involved in the preparation of a map. On the other hand, a rough plan of the classroom or of the school building may be prepared more easily, if with less accuracy, and forms a useful starting-point for map study in the case of younger or weaker pupils.

3·2·4. As relief is generally represented on maps by means of contour lines, sufficient time must be allotted in the lower forms to a careful treatment of this important part of the work. To enable the pupil to obtain a proper conception of the relief of an area represented on a contour map, the construction of a contoured model and the study of pictures of the area shown are highly desirable if not essential.[1]

3·2·5. Whenever the locality of the school permits, the study of contours should be closely connected with outdoor work, and the relation to relief of the local system of communications often forms a valuable introduction to such ideas as those of gap and gradient. However anxious a teacher may be to begin work in Regional Geography, he will be well advised first to ensure that the pupil can identify the simpler land forms as expressed in contour maps.

3·2·6. At this stage the pupil will learn to read the six-inch, two-and-a-half-inch, and one-inch maps of the Ordnance Survey, and will be introduced, where possible, to the twenty-five-inch map: the conventional signs will be learnt through constant study of these maps. It is most important that the introduction of such mapwork should be accompanied, when at all practicable, by a comparison of the map with a view of at least a portion of the ground covered, even if the viewpoint be merely an upper window in the school. Graduated exercises on the one-inch and larger scale maps should be continued throughout the course.

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[1] See section on Contours, p. 195.

3·2·7. It is no small step from the large-scale ordnance map to the relatively minute scale of the atlas map. The pupil can easily understand the ordnance map with its wealth of topographical detail which lies largely within his own experience, but careful work on the part of the teacher is necessary to bring him to realise that the small-scale or atlas map is a mere skeleton and to establish a technique for the reading of such maps. A series of direct questions on an atlas map, e.g., on the map of Africa, has been found useful, not so much in order to teach the geography of the continent as with the object of establishing a method.

3·2·8. The idea of the world as a globe should be introduced at the preliminary stage and should lead on to the ideas of latitude and longitude and the map net; but the treatment should be as simple as possible, the more detailed study being relegated to a stage when the pupil's mathematical conceptions have been sufficiently developed.

3·2·9. Ideas of climate must be based on practical work and one very important purpose of weather observation in Geography is to furnish a means of approach to the idea of a climatic region. Before distant climatic regions can be discussed it is necessary that the pupils should understand what is meant by such words as "cold," "cool," "warm," "hot," "dry," and "wet." Though opinion is divided on the question whether there is any geographical value in making each class carry out meteorological observations, teachers in general agree that pupils in lower and middle forms should learn how to observe temperature, rainfall, wind, cloudiness, and the seasonal changes in the sun's elevation; they will thus be able to contrast the climatic conditions of distant lands with those with which they are familiar. The difficulty of holiday interruptions may be overcome by making one series of observations during a month typical of winter weather and falling within the term, e.g., in February, and another series, say in June, for the summer conditions.

3·2·10. The method of plotting lines of equal distribution may be introduced at this or at a rather later stage and practised, by means of occasional exercises, in the middle and upper forms. It will be found that isotherms, isohyets, and isobars will be easily understood if a pupil is given the opportunity of constructing them—as in the case of contours from spot heights—from readings of temperature, rainfall, and pressure previously plotted on an outline map: but such work will, for the most part, be relegated to a later period than the Preliminary stage and may then be associated with other ways of representing distributions, such as the "dot" map.

3·2·11. The graphical representation of climatic and other data is another important item in the preliminary practical work, and here again there is opportunity for co-operation between the geographical and the mathematical staff. Facility in the speedy and accurate construction of a rainfall or temperature graph is a valuable aid, if not a necessity, to a pupil in his later work, e.g., in illustrating the division of a country or continent into its climatic regions.

3·2·12. It is probable that many children of between ten and twelve years of age know the common surface soils, but they obviously cannot be expected to describe edaphic factors in plant growth before they know the differences between these soils, and it may be necessary to provide the lower forms with specimens of clay, gravel, sand, and silt for observation and experiment. Every opportunity should be taken of observing relations between soil and vegetation and of noting types of natural vegetation, such as moor and woodland, and of land utilisation.

The Home District[1]

3·3·1. After what has been said above, it will be realised that some study of the Home District is inevitably connected with the development of the pupil's geographical vocabulary. But the home region is not to be studied from this point of view alone. The educational value of the direct observation of places, things, people, and work, and the correlation of ideas based on this observation, are so evident as to need little emphasis. It is one of the main objects of the study of Local Geography to lead the pupil to see, first of all in his own familiar surroundings, how man has been affected by his physical environment, and how he has modified or conquered that environment; he will then be better able to appreciate the corresponding reactions on the wider scale of the great regions of the world. Thus Local Geography provides him with a ready standard of comparison for things far away and long ago.

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[1] See "Local Geography," later in this chapter.

3·3·2. No hard and fast lines can be laid down as to what is to be included in the term "Home District." Each teacher should make himself acquainted with the Geography of the district near the school, and should select for himself what he considers to be the salient features of Local Geography suitable for study in the lower forms. The unit selected may be the parish, the river valley, the industrial village,[1] or the city. The selection of the unit will depend on the kind of locality, whether urban or rural, agricultural or industrial, with or without distinctive physiographical boundaries, and also to some extent on the predilections of the teacher.

3·3·3. Suggestions as to method of procedure in the study of Local Geography will be found in the next chapter and in Chapter VII, and a list of reference books and papers in Appendix V, but it may be well to emphasise here that the work should be planned so as to bring out as clearly as possible the course of local evolution. How this is to be done will vary with local conditions, but the teacher should have before him two main aims—to show the influence of site and location on the lives of the inhabitants and to show the effects of contacts made with other districts. In the case of the older settlements, at least, it is generally possible to extract from the maps details of relief, drainage,

[1] Such as a Welsh mining village.

and vegetation which will give a picture of the district at a very early period, possibly before it was occupied by man, and hence to discover the geographical conditions, e.g., the position of a stream or spring, which led people to choose the particular site for their homes. It is also possible to set out the means of communication at various periods, noting their relation to the relief, and thus to show how contacts were established with the outside world. It is important, too, to note the developments which have taken place since the end of the eighteenth century, and especially the effect of the construction of railways, canals, and docks, in bringing the life of the district into intimate relationship with the world as a whole.

3·3·4. Every town and village possesses illustrations suitable for geographical study, and it is the duty of each school to accumulate sufficient material for teaching the Geography of the Home District. It may be that the results of geographical research in the neighbourhood of the school have been published, but as a rule the teacher will find it necessary to investigate the Geography of the district himself or to initiate a geographical survey of the locality.[1] When the material has been collected it must be presented in the form of pictures and diagrams, maps, and models. The construction of a relief model is essential, and in the case of a district where minerals are important a second model of geological features may be prepared at a later stage. A special department of the school geographical museum may be reserved for Local Geography, where such records may be kept and where samples illustrating such geographical factors as local geology and industry may be exhibited.

3·3·5. It is true that in urban areas the Geography of the Home District presents special difficulties. Direct observation on the town site of details of configuration and hydrography, largely obliterated by urban concentration, is difficult if not impossible, and most town schools are situated too far from the open country to allow of frequent access to suitable viewpoints. On the other hand, historical and other records are more likely to be available in a town, and the study of Local Geography may then be based on that of the growth of the town or urban district from its earliest foundations to the present day. An outline of such a study is given in the following paragraphs.

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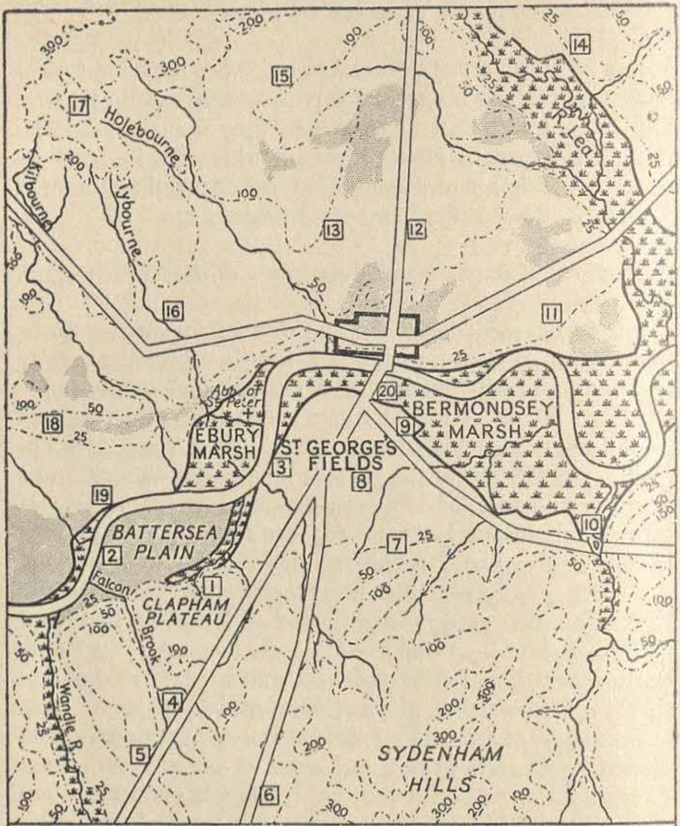
[1] See Chapter VII, under "The Organisation of Local Surveys."

Example of Material Suitable for Study of the Home Region

3·3·6. Let us consider the case of a school situated on or near Clapham Common in South-west London. The county of Surrey consists of the following physical subdivisions: the High Weald or Forest Ridge which forms the southern boundary, the Low Weald, a heavy clay area formerly occupied by forest, but at the present time under cultivation or pasture; the vale of Holmesdale—the former granary of Surrey and important for agriculture at the present time time; the Downland—chalk heathland with woods where the chalk is covered with impermeable clay with flints—broken by river gaps in the neighbourhood of Dorking and Guildford; and the London Basin, which consists of a sandy heath-covered region in the west and a plain of London clay in the east. Clapham Common is a plateau lying between seventy and one hundred feet above sea-level and consisting of river gravel and sands of an infertile nature which lie above the London clay. The Clapham Common plateau overlooks the silt-covered Battersea plain, which forms the southern bank of the Thames.

3·3·7. Memoirs of the Geological Survey and an account of the geology of Clapham Common given by Prestwich, who lived at Clapham, make it possible to reconstruct the conditions which have determined human settlement since palæolithic times. The map of Roman Britain published by the Ordnance Survey shows two Roman roads crossing the Clapham district. Though local history of the Roman period is of a legendary character, it is evident that this district has been in close contact with London since the



▨ Marshes drained after the Norman Conquest.

▨ Cultivable land (brick-earths, etc.) in Saxon times.

═ Roman Roads served by London Bridge.

Saxon villages named in Domesday Book. These were situated where gravel beds gave rise to local springs. 1. Clapham. 2. Battersea. 3. Lambeth. 4. Balham. 5. Tooting. 6. Streatham. 7. Camberwell. 8. Walworth. 9. Bermondsey. 10. Deptford. 11. Stepney. 12. Haggerston. 13. Islington. 14. Leyton. 15. Tollington. 16. Tiburne. 17. Hampstead. 18. Kensington. 19. Chelsea. 20. Southwark.

FIG. 2.—THE SITE OF CLAPHAM.

building of London Bridge. As in most parts of South London, the Saxon hamlet originated on a bed of gravel which gave a perennial water supply, and on one of the many springs which issue from the Common it is possible to identify the site of the original manor. The local libraries possess a considerable amount of information on the early history and development of the village, and there is an active antiquarian society which has preserved many details of value in building up a picture of the past.

3·3·8. Old maps, gazetteers, and guides make it possible to reconstruct the life of the district from the early years of the seventeenth century. Rocque's map shows that about 1745 a large part of the area near the Common was permanent pasture, whereas the neighbouring Battersea plain was under cultivation, the common field producing grain and the area near the Falcon Brook (inhabited by Huguenot refugees) vegetables for the London market. Statistics of population show that Battersea supported more inhabitants than Clapham, which was chiefly pastoral and a residential village for wealthy city merchants. It should be understood that a hundred years ago both Battersea and Clapham were small villages, and that the subsequent massing of population was due to the rapid growth of London after water supplies were brought from outside the gravel terraces which had supplied all that was needed for more than a thousand years. A comparison of maps of different dates during the past century shows the influence of roads and railways as important factors in the increase of population, bringing these villages into closer contact with the growing activities of the City and Port of London. Census figures may be used to illustrate how the villages became part of the great conurbation of which London Bridge is the centre:

POPULATION.

	Clapham.	Battersea.
1801 . . .	3,800	3,300
1831 . . .	9,900	5,500
1871 . . .	27,000	67,000
1911 . . .	120,000	167,000

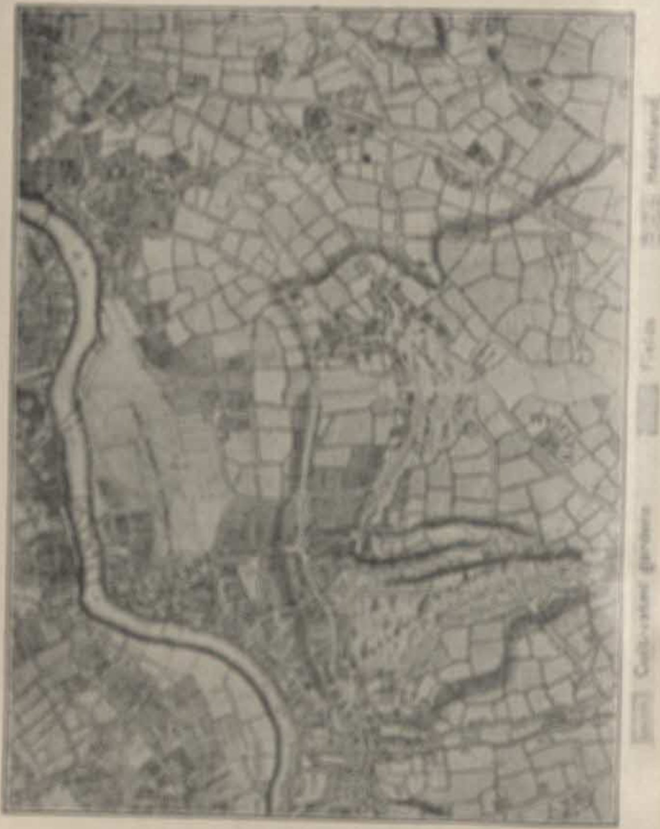


FIG. 3.—PART OF JOHN ROCQUE'S MAP OF LONDON (1745)

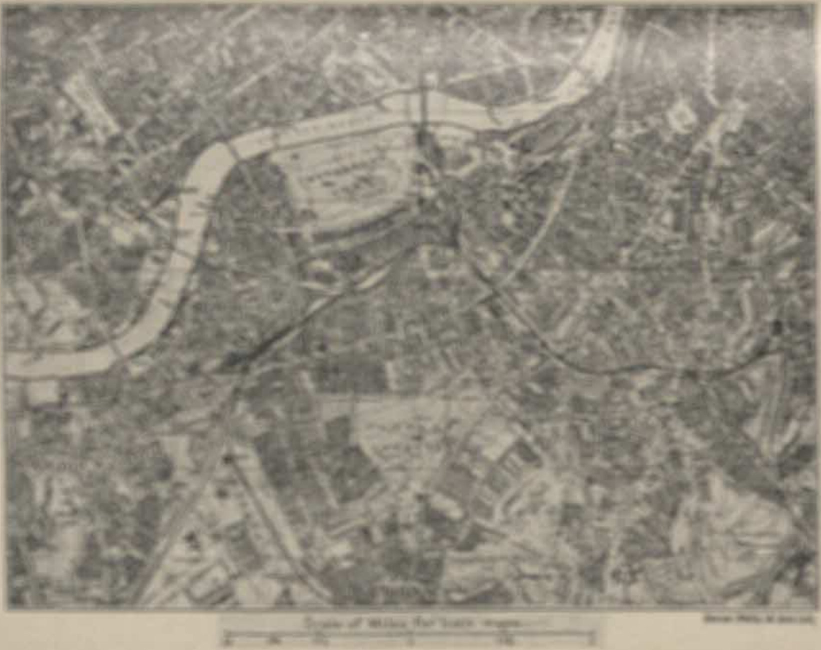


FIG. 4.—PART OF A MAP BY GEORGE PHILIP & SON, LTD. (1933), COVERING THE SAME AREA AS FIG. 3.

During the early part of the nineteenth century, Clapham remained the dormitory of London merchants and increased in population more rapidly than Battersea, which was almost entirely agricultural. Later, however, a great railway junction was built there and the common field was enclosed so that Battersea became a large industrial town. In the village of Clapham there was no great increase of population until the common became the terminus of the underground railway. During recent years, the Clapham district has been urbanised and the mansions, stables, paddocks, and ornamental grounds of the merchant princes have been replaced by flats and small houses, while offices and shops occupy what, barely a century ago, was pasture land. Sufficient of the past remains to demonstrate the revolutionary nature of the change which has taken place. There is a point in the study of local geography where the pupils wish to know the reason for the rapid development of their Home District, and thus the teacher is provided with a suitable opportunity for introducing a discussion on the development of London, from its origin as a small Roman bridge-port of a relatively unimportant frontier province to its present condition as one of the world's greatest political and financial centres and the home-city of a world-wide empire.

3·3·9. Such are the facts which the teacher of Geography may use in teaching Local Geography in an urban area[1]; and though the amount of detail he introduces will depend on his personal predilections and on the needs of his pupils, he will be able to make them understand how local geographical conditions have determined the sites of local settlements, and how the relationships of the immediate area of the school to other areas have influenced human development.

II. The Transition to World Geography

The Larger Home Sub-region

4·1·1. When the Geography of the immediate locality of the school has been studied, it will be necessary to link it up with that of the larger sub-region of which the school or Home District forms a part. This sub-region is generally distinguished by its physiographical character, and the early work should lead to the evolution of some ideas as to what constitutes a geographical "region."

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[1] For localities of other types see Chapter VII.

4·1·2. The best way to make this connection is to send the class for a week or a fortnight into another district which offers strongly marked contrasts with the Home District as regards both physical conditions and human activities. Children living in an agricultural lowland have been successfully transferred to a hilly and industrial district. They were accompanied by their own Geography teacher, but it is quite possible for schools situated in widely differing districts to exchange classes without unduly upsetting their school time-tables. Details of such an interchange between schools in Lincoln and Chesterfield are given in Chapter VII, where, also, will be found particulars of school camps which may serve the same purpose.

4·1·3. The difficulties which the organisation of a school journey involves may often prove insuperable, but where these journeys are carried out as part of the course the Geography of the Home Region becomes a background of reality which enables the pupil to form truer and more intimate pictures of life in distant lands than would be possible without such an experience of geographical conditions outside his own immediate environment.

4·1·4. Where longer journeys are impracticable, much good work may be done by a day or even a half-day excursion to a distant viewpoint or centre of geographical interest. The journey itself may provide instruction, especially if it is taken by special 'bus or coach, so that stops can be arranged for and the route chosen by the teacher with a view to the educational objects of the excursion.

4·1·5. In any case, whatever method be chosen to bridge the gap between the Geography of the Home District and a systematic treatment of a wider area such as the Homeland, it should be remembered that very frequently a neighbouring county, or even a neighbouring township, is as much a foreign country to the average pupil of ten or eleven years as is a part of the continent of Europe, the study of which is generally regarded as so complex in its human aspects that it is deferred to the fourth or fifth year.

The Homeland

4·2·1. At some point in the course it is necessary to make a systematic study of the British Isles, although the practice of studying the British Isles *in outline* in either the first or second year, which is followed in many schools, is not to be recommended. In other schools, apart from the study of the Home District, it is usual to leave the systematic treatment of the British Isles to the fourth or fifth year, when the pupils are in a better position to appreciate the complex nature of a highly industrialised society. It should be borne in mind that true Geography is recorded in life and not in manuscript, and though it is possible for quite young children to memorise verbally a great many of the details of British Geography, it would be equally easy, and equally useless, for them to memorise the details of a remote province of China. Understanding should precede the memorising of details, and it is unwise to attempt a stratigraphical or even a structural division of any part of the earth's surface at the Preliminary or Transition stage; much of the detail which can readily be assimilated at the age of fifteen cannot be properly understood by children of eleven or twelve years of age. Many teachers of Geography introduce systematic detailed work on the British Isles in the fourth or the fifth year because, at this stage, pupils should be able to appreciate the importance of climate and physical structure in determining industrial and commercial development, and are capable of understanding the relationships of their homeland with some wider units, such as continental Europe, the British Empire, and the World as a whole; but any region, especially the British Isles, so deferred should have received some preliminary regional study, including reference to its relation to neighbouring regions, early in the course.

4·2·2. It would be generally agreed, therefore, and it is the opinion of this Committee, that the natural and proper place for a first treatment of the Homeland is at the Transition stage. Here such a study serves two main purposes. In the first place, it extends the notion of man's relation to his geographical environment beyond the field of the pupil's everyday life in his Home District, but not so far that he is likely to be without some points of contact with his own experience. Far more pupils will have seen something of the British Isles, or will have some personal or family connection with other parts of the Homeland, than will have any experience of things or persons in distant lands. The pupil, therefore, is prepared for the wider flights his imagination will have to take in the study of the world as a whole by the presentation, on the stage of the Homeland, of the distinguishing characteristics and controls of fundamental human occupations, such as fishing, farming, and industry.

4·2·3. This presentation will be made with the help of contour maps, such as the small-scale ordnance maps, and especially with the plentiful use of good pictures, both of scenery, to co-ordinate the map with the actual appearance of the country, and also of processes, to make real to the pupil what is meant, in human terms, by cultivation, by textile industry, by coal-mining, and by the other outstanding activities of the Homeland: for unless the pupil can early form a clear mental picture of these things he is likely to remain blind to all that really matters in his later geographical studies. The types and sources of such pictures will be considered later, but it will be obvious that the use of the epidiascope and especially of the film projector at this stage is particularly valuable. It should be constantly borne in mind that this early work on the Homeland, together with the study of the Home Region, is largely an introduction to the principles of Human Geography—the response in human activity to environmental conditions.

4·2·4. It is important that emphasis should be laid on the specific character of this response. It is not sufficient to refer in general terms to the fishing industry; it is necessary to supply a definite background of the fishing activities themselves. Similarly to speak of coal-mining or of the cotton industry or of wheat-growing in this or that area is of little use without the presentation of the significant details of these human activities, which not only strongly appeal to the pupil himself at this stage, but build up in his mind a proper connotation of the terms which subsequently become part of the vocabulary of the subject. It may be argued that the pupils' preliminary geographical studies have largely tended in such a direction, and this may well be true, but the Homeland study provides an opportunity of giving "body" and definition to mental pictures which are probably very vague in outline; and such a wealth of illustration is available in connection with the Homeland that the opportunity of doing this is too valuable to be missed. The term "coal-mining" can be made to have a significance involving such things as pit-head gear, the cage, and conditions at the coal face; "wheat-growing" can be provided with definite associations of ploughing, sowing, reaping, and so on, and thus yield a true picture of one important aspect of farming activity; and a textile industry can be given links with raw material and the factory processes of spinning and weaving. These are merely illustrations of the opportunities that the preliminary work on the British Isles provides of giving the course in Geography a definite bias towards the human side—which is largely the reason for the inclusion of the subject in the curriculum.

4·2·5. Although throughout this work stress will be laid on the human note, the teacher will have in mind the wider physical background and will bring out as opportunity offers, without systematic treatment, the scientific basis of the subject, the relation of cause and effect.

4·2·6. A second purpose served by the study of the Homeland is to suggest fundamental ideas of Regional Geography arising, even within the limited area of the British Isles, largely from differences in physical conditions. Without any attempt at formal regional study, striking and significant contrasts can be drawn between widely differing regions; for example, between the Scottish Highlands and East Anglia, or between the Pennine Upland and its adjacent industrial districts.

4·2·7. As this introductory study of the Homeland must of necessity be short, it would appear that there should be no attempt to be comprehensive in the sense of a complete regional study of the British Isles; the course will rather be selective, the treatment being by topics rather than by systematic regional subdivision. The following suggestions are put forward as helping to illustrate the principles which have been outlined above.

1. *Farming.*—Special attention can be given to the conditions and activities associated with (*a*) wheat-growing, (*b*) cattle-rearing, particularly dairying, (*c*) sheep-farming. This will provide opportunities of illuminating the lesson with much human interest as well as introducing the pupil to many widely differing areas within the Homeland, areas differing in both relief and climate. Some generalisations about the British climate may well follow, while the idea of market towns will be introduced.

2. *Fishing.*—A study of this industry, particularly on its commercial side, permits of some description of trawlers, drifters, and line fishing, as well as some reference to fishing ports and their activities. The idea and importance of the continental shelf or platform can usefully be introduced here.

3. *Northern England* (roughly north of the Trent).—This provides (*a*) a study of the Pennines, (*b*) a study of important industrial occupations, notably coal-mining, textile industries, iron and steel and the pottery, chemical, and shipbuilding industries. The opportunity should be seized of

giving a real picture of each industry, and of what is meant by an industrial town, while Newcastle will provide an admirable study of a nodal town and Liverpool a study of a large modern port.

4. *Scotland.*—Here stress can be laid on physical divisions, and some attempt can be made to characterise each from the human point of view. No analysis of Scottish industrial life can well be attempted, although some reference can be made to industry as studied in Northern England, but a particular aim should be to characterise the Highland environment, including the Western Isles. The prevailing physical conditions and occupations provide a striking contrast with the earlier studies, while the locations of several towns can be selected for analysis.

5. *Other Regional Studies.*—These will necessarily depend upon the time available and upon the inclination of the teacher. He may desire to introduce some special study of Wales, of Ireland, of South-west England, or of the Midlands; but the main object of this course will have been served without such additions.

Introduction to World Geography

5·1·1. The question whether the whole world should be studied systematically, by regions or otherwise, is considered later, but before this stage is entered upon it is frequently the practice and, in the opinion of this committee, highly desirable that a brief introductory study be undertaken of the world as a whole, particularly from the point of view of human and economic geography. Such a "world view" may be regarded either as the final step in the Transition stage or as an introduction to the Regional stage of the Geography course, and it is useful in more ways than one.

5·1·2. In the first place, it serves to give a background to the regional treatment of the continents by presenting a picture of the world of which they are part. The knowledge of the relative position of the continents, for instance, and some idea of their general characteristics, are almost a necessary preliminary to a more detailed study of their regions. Some idea of world-scale, too, should be gained by, for instance, estimating the time taken to make certain journeys by land, sea or air. Thus the pupil is introduced to the use of the atlas, in itself an important function of this part of the course.

5·1·3. Again, this introductory study is useful in "levelling up" the world knowledge of the class. It serves to co-ordinate, not only the scraps of knowledge of the world in general that the individual pupil possesses at this stage, but also the knowledge possessed by the class as a whole, as between pupil and pupil. In the lower forms of the Secondary School many pupils who show wide variations in their store of geographical knowledge and ideas will be taught together, and this preliminary survey, whilst it takes advantage of what the pupils already know, ensures that there are no serious gaps or misapprehensions in their conceptions of the world as a whole, and thus prepares the ground for the regional work to come.

5·1·4. Finally, if treated in the right way, it should awaken the pupil's interest in "the wide world and all that therein is." So far his attention has been concentrated on his immediate surroundings, or at least confined within the shores of the Homeland. Now he is encouraged to look far and wide, and there are few boys or girls whose imagination cannot be kindled by what they see when their vision is wisely directed.

5·1·5. The approach, then, must be made as interesting as possible. It may be through the lives of the peoples of the world and their dependence on climatic and other conditions; it may be through tales of travel and exploration; or it may be through the pupil's own everyday needs of food, clothing, and shelter, and the means by which these wants are supplied from all parts of the world: but in any case the human interest should be the guiding principle.

5·1·6. No attempt should be made at an exhaustive treatment, but the main types of vegetation or climatic regions should be studied through their human and economic Geography, with but general and qualitative reference to climatic considerations. The breakfast table alone, with its bread, butter, and bacon, its tea, cocoa, and coffee, its marmalade, and its morning newspaper, will suggest temperate grassland and tropical savannah, Mediterranean lands and hot monsoon, as well as every type of forest region.

5·1·7. In framing a syllabus, then, for the Introduction to World Geography, the teacher has a wide choice before him both of content and of method of approach. The scheme given below has been found to be adequate for the purpose of this Introductory stage, but it is merely one out of many, and must on no account be regarded as being put forward by the Committee as a model syllabus. It presupposes a preliminary study of the globe and the world map. The headings merely indicate the point of approach.

1. *Our food:* (*a*) The baker's work, the miller's work, the wheat grower's work: our wheat supply.

This might involve some repetition of the work on the Homeland, but it would afford an opportunity for a comparison between the scale and methods of wheat growing at home and in, say, Canada.

(*b*) Meat production: our meat supply.

This would lead to a brief study of the distribution and character of the world's grasslands.

2. *Timber*. Modern uses of timber, including wood pulp. The distribution of the world's forests, distinction being made between those which are being exploited and those which are not. The chief areas of cleared forest land and the use men make of these areas.

This work may, perhaps, be introduced by way of the breakfast or tea table, and it would lead on to a discussion of our supplies of such commodities as cotton, rayon, and rubber.

3. *Deserts* (as a contrast to forests). The distribution of the world's great deserts (both dry and cold). Deserts

as barriers to movement. Some desert products.

Irrigation. An example of an irrigated area.

Here may be added, if time permits:—*Between desert and grassland:* our wool supplies. *Mediterranean lands:* our fruit supplies.

4. *The great fishing grounds* and the fish caught. Methods of transport in the fishing industry. The relation of fishing to exploration and discovery.

5. *Power*. Coal and its modern competitors—oil and electricity. Parts of the world which are rich in coal, oil (petroleum), and water power. Examples of the use in industry of these sources of power.

Iron and other metals. The making of the metal from the ore. Some of the great centres of the metal industries.

6. *The major areas of dense and sparse population* in relation to the work already done.

7. *Seaports and world trade*. The world's great trade routes. An example of a great seaport, with details of the facilities for handling freight. Railways as feeders of the ports, leading to the meaning of the word "hinterland."

5·1·8. The order of treatment of such a syllabus may be varied at the discretion of the teacher concerned. Some teachers, for instance, will prefer to place section 4, the fishing grounds, first, and develop a knowledge of the world from the voyages of discoverers and explorers, as has been suggested above. Others may wish to modify section 5 or to deal with its content in the study of the Homeland. Others, again, may find that time will not permit the whole syllabus to be covered and that a selection of topics will be necessary. But there is little of the work outlined here that should not be familiar to the pupil before he proceeds to detailed regional study.

III. The World Stage

5·2·1. At the beginning of the present century the method of presenting Geography in most Secondary Schools was as a series of facts to be committed to memory, with little attempt at illustration, explanation, or rational connection. Occasionally the pupils were provided with an atlas, but this seldom showed the physical conditions. The whole business was a dreary round of memorising unrelated details; and, as the examinations for which the work was intended to prepare usually demanded a knowledge of specified areas only, it was possible for a pupil to complete the course without having studied more than one or two continents. The great majority of children left school without ever having had the opportunity of learning anything of the world as a whole or of the interrelation of its different parts.

5·2·2. When the earlier editions of this book were printed, the Committee were generally agreed that it was essential that the whole world should be studied and this view was upheld by the majority of practising teachers who were consulted. Opinion now, however, is by no means so decided on this matter. Those who maintain that the study of the whole world should not be attempted, even if sufficient time for it be allotted in the time-table, are relatively few, but their point of view cannot be ignored.

5·2·3. The main argument of those who hold this view is that emphasis should be laid on "reality," that, since children are not possessed of adult logical minds, they do not feel the need for the wider unity of completeness. Consequently, detailed study of small regions, typical of larger areas, or even detailed study of a farm or an industry are of more value than general surveys. These can later be put into a continental framework and a proper "geographical context" thus supplied. But no attempt, on theoretical grounds, should be made to study a "complete" continent methodically. At all stages up to the final year of the normal course the detailed realistic approach is the most valuable, and this consideration must take precedence over all others, With the increasing age of the pupil and his widening knowledge of man in different environments, it is possible and desirable to lay increasing emphasis upon interrelations between region and region, or between continent and continent; but this should be done only if the detailed knowledge is sufficiently well founded to carry such comparisons or relationships.

5·2·4. World relationships and general principles may, it is asserted, be better understood if continents are not regarded as units at all. Sample areas in different continents, chosen because they exhibit a definite character of their own and yet are typical and representative of other areas, may lead to a further understanding of the interdependence of man in his varying geographical environments. If the whole world happens to be covered by this method, well and good, but this is, in a sense, incidental. However much the teacher may have constantly in his mind the consciousness of the whole world, the pupil must always be studying a region, seeking to see there the true relations between man and his physical, human and social environment. In short, the aim is not that the pupils shall know "the world," but that they shall know how men live and how and to what degree their lives are affected by the geographical conditions under which they live.

5·2·5. There are many practising teachers, however, who regard the study of the whole world as essential to a proper understanding of man and therefore as the proper course in geography teaching; and yet they are forced by time-table restrictions or examination requirements to compromise with their ideals. The question of how these compromises are to be made, of what is to be omitted from the course, must be decided by the individual teacher. This Committee is not in a position to make a general pronouncement. In any case, under present regulations, which should tend to reduce examination pressure, such difficulties should become less common.

5·2·6. The majority of teachers still agree with the thesis of this Committee in its previous recommendation that no course in Geography is complete if it does not study the whole world. On the other hand, opinion is by no means crystallised as to the form this world study should take, its order of treatment, or the amount of detail it should include. Such questions are matters of wide difference of opinion if not of controversy; and many teachers experience the greatest difficulty in deciding what to teach of World Geography in view, especially, of the exigencies of the school time-table and, it may be, of the requirements of examinations.

5·2·7. To say that the whole world should be covered is not to imply that every part of the world must be treated in the same way, or with the same amount of detail. If the psychological development of the pupil be kept clearly in mind and also the aim of the course to give an adequate picture of how human activities respond to a variety of physical and climatic conditions, differences in emphasis will at once arise from the different degrees of importance of the various parts of the world and the different degrees of difficulty which experience shows are met with in the study of the world's regions.

5·2·8. The treatment may be modified to some extent by other considerations also, such as the special knowledge or interest of the teacher, but more important is the fact that some areas, owing to the methods of illustration available, lend themselves better to exposition at the school stage of development than do others. It may be argued, for example, that West Africa is economically and culturally less important than New England, yet it provides an admirable example for geographical study with its contrasted climates and vegetation, its intrinsic human interest, and its modern development; so that it may well be given a prominence that is out of proportion to its importance as compared with New England, an area needing very detailed study for its proper appreciation. It is sometimes argued that the Eskimo and the Congo pygmy have been given undue prominence in the elementary teaching of Geography, and it must be admitted that it is possible to lay too much emphasis upon obscure and unimportant peoples; but these things must be judged, not entirely from the point of view of an adult conception of Geography, but largely from the point of view of what is psychologically fitting at the particular stage of intellectual and emotional development represented by the pupil. There can be no doubt that in judging the fitness of a region for geographical exposition regard must be had to psychological considerations of this character.

5·2·9. In a full treatment of World Geography each continent should be studied individually, though this statement must not be interpreted in too rigid a manner, for continents are not independent units—Europe, for example, is a peninsula of Asia. The order in which the continents should be taken will be considered later, but it should be noted that the variety of their characteristics lends itself to a variety of treatment which makes it possible, as with smaller units, for the mental equipment of the pupil to be taken into account in the selection of the particular continent to be studied at a particular stage of the course. Thus it is a matter of general agreement that the geography of Australia should be taken at an earlier stage and with less detail than that of Europe, with its more complicated physical character, its much larger population, presenting widely varying features of cultural and economic development, and hence with the much greater variety of geographical studies that it provides.

5·2·10. The different continents, again, show different varieties of human response to physical conditions. The southern continents reveal frontier conditions, with scattered communities of a variety of races taking the first steps in the harnessing of Nature's resources. North America provides a picture of a more rapid development due to the employment of mechanical inventions to make up for the absence of densely populated reservoirs of labour. In the case of Asia, consideration should be given to the contrast between the ancient agricultural civilisations of the great river valleys of the east and south and the semi-barbarism of the north.

5·2·11. The amount of attention to be paid to detail will vary with the subject-matter and with the stage of the course. Broad generalisations will clearly be out of place in the lower stages, where the work is more concerned with building up the foundations for such generalisations, but at the same time too much concentration on matters of detail is to be avoided. At a later stage, when modern economic conditions are studied, broad comparisons may be made between the continents or other large areas. The modern development of Asia, for example, may be compared and contrasted with that of Africa and America, with due emphasis on the serious situation which is arising as the densely populated Asiatic world, with its ancient system of hand labour, adopts labour-saving machinery in response to the stimulus supplied by the Western world.

5·2·12. At every stage the pupil's attention should be directed to the underlying geographical principles, particularly to the effects of relief, mineral resources, climate, and soil in promoting a great diversity of human activity. In the earlier stages only the more direct forms of human response will be considered; but later on problems of a less simple character may be dealt with, e.g., it should be shown that race-types differ in their physical strength and in their mental capacity so that mankind develops more slowly in certain areas than in others. The pupil should learn that cultural differences, differences in the stage of economic development, and differences in density of population promote commerce, but that, as the means of transport and intercommunication improve, these differences tend to disappear. As far as possible the subject-matter should always be chosen so as to drive home some geographical principle.

Regional Geography

5·3·1. It was in 1905 that attention was first seriously attracted to the regional method in Geography teaching through the publication of Herbertson's generalised account of the "Major Natural Regions," in which he pointed out that, for school purposes, the world may be divided into a dozen or so broad climatic regions which occur in each of the great North-South land masses. The fact that much of Herbertson's work had been foreshadowed in the researches of the nineteenth century does not lessen the debt which teachers of Geography owe to one who must be considered the founder of modern geographical study in Secondary Schools as well as in Universities. The idea of teaching Geography region by region was quickly adopted and has become almost universal among those teachers who believe in a systematic treatment of the whole world.

5·3·2. The regions with which the work of the Secondary School is concerned fall into two main types. The first is the large and important region which is studied chiefly by means of second-hand information derived from books and atlases. The second is the small region studied chiefly by direct observation, supplemented to a certain extent by reference to maps and local source books.

5·3·3. During the past century the influence of Leplay and Prof. Patrick Geddes has been such as to widen the meaning of "Regional Survey" to include much of a sociological character which lies outside the scope of ordinary school work in Geography. Nevertheless, any systematic study of a small area is often referred to as "Regional Survey" when it might be described more accurately as "Local Geography." The place of Local Geography in the school course has already been fully dealt with, and although it uses methods of direct observation which are characteristic of Regional Survey the latter must not be confused with it. Indeed, it is the view of the Committee that the intensive study required in a Regional Survey should not be attempted in a Grammar School below the final stage of the normal course.

5·3·4. The division of the world into regions of the first or "major" type has been the subject of considerable discussion. Apart from the difficulty caused by the demands of the examination system there are several factors influencing our choice of material in the teaching of the great regions.

5·3·5. As defined by Herbertson, the "Major Natural Regions" were based on differences of natural vegetation and reflected to a great extent differences of climate. The climatic regions, however, have been classified independently by Köppen and Miller, and though there is general agreement as to what the climatic conditions are in different parts of the world, the method of classification is by no means uniform, whether among University teachers or in the ranks of the writers of popular text books.

5·3·6. Again, the earth's surface has been divided, mainly by the American physiographers, into geomorphological or "physiographic" regions which combine the idea of structure with that of relief. On this basis it is possible to analyse the reasons for human activities connected with any particular physical unit. Finally, a number of eminent geographers of University rank have endeavoured to combine climatic and physiographic considerations with those of sociological and economic development in what they term "geographical" regions. The advocates of this omnibus type of region, however, are not in agreement as to what constitutes a "geographical" region, and the phrase has been adopted in textbooks of Geography with rather unfortunate results.

5·3·7. The Committee is of the opinion that although Herbertson's classification, in a modified form, may well be used in Secondary Schools, the subdivisions should be termed "climatic" or "vegetation" regions. It will be found that this classification is of great value in subdividing continents and in analysing the factors which influence human activities. It is also desirable that the continents should be subdivided into "structural" regions, and this classification should be used in the case of countries which lie entirely within one of the major climatic divisions. In the present state of opinion it is inadvisable to include in the general course any reference to "natural" or "geographical" regions, or even, perhaps, to "economic" regions. It is far easier to introduce a new term than to get rid of an old one which is definitely misleading, e.g., the term "anti-trade wind," which is still in fairly general use in textbooks though it has been condemned by the majority of British geographers and is unknown outside the British Commonwealth.

5·3·8. In the study of a region there is room for considerable variation in method and order of treatment. Some teachers work back from human effects to physical causes, but a more common practice, perhaps, is to begin with the physical basis. The following analysis is given rather to indicate the minimum content of a regional study than to suggest an order of arrangement which might, indeed, arouse some controversy.

5·3·9. Position, structure, relief, drainage systems, and climate may first be considered and the work made to lead on as naturally as possible, through the biological geography of the region, natural vegetation and animal life, including, at least at later stages, some reference to soils, to its human geography, agricultural and pastoral occupations, and, via the exploitation of power resources and mineral deposits, to industrial occupations. The distribution of population may then be dealt with, and this, in turn, leads to the study of transport and communications and to the locations of towns and cities. Finally, and especially in the case of a maritime country or region, after the consideration of ports and their trade, the study may conclude with the relation of the region to other regions, and its world importance. A more detailed treatment of the method of a regional study will be found in the next chapter.

Order of Treatment

5·4·1. The order of treatment in Secondary Grammar Schools of the regional geography of the world has been extremely varied; out of the eighty syllabuses, for instance, submitted to the Committee for the original edition of this Memorandum, no two of the five-year courses agreed. In two respects, however, there was some measure of correspondence. In many courses a study of the British Isles, often preceded by that of the Home Region, formed the bulk of the first year's work; and the final year was usually occupied with world revision, with or without a study of the British Isles in detail.

5·4·2. There is some ground for believing that many schools have now adopted courses on the main lines of the Committee's recommendations shown on p. 61. In any case it cannot be too strongly emphasised that, in the opinion of the Revising Committee, the acquirement of a geographical vocabulary with its application to the Geography of the local region must be the first aim of the introductory year's work. Modifications in the remainder of the syllabus are relatively unimportant, but the study of Eurasia, in the year preceding the final year, may replace that of Europe and Asia separately, and in some cases Europe, or perhaps a more detailed study of North America, may be taken in the final year. It may be remarked that little use appears to be made of the study of the British Commonwealth as a revision course.

5·4·3. The "concentric" plan, by which the same ground is covered in successive years, but with different emphasis and increasing detail, is attempted by few teachers in actual practice. In some cases, however, a modification of the method is used in dealing with the world as a whole. For example, at an early stage the study of World Geography is confined to the peoples of the world and world commodities, as indicated above in the "Introduction to World Geography," p. 48; later on it may be taken in connection with British trade or the British Commonwealth, and at a still later stage in the study of major regions. The fifth year frequently provides a revision course in which the ground covered in previous years can be traversed, if not in greater detail, at least with different emphasis and from a somewhat more mature viewpoint. In a sense this is "concentric" treatment, but, on the whole, the adoption of such methods throughout the Secondary School course is not regarded as practicable.

The Committee's Recommendations

5·5·1. After due consideration the Committee recommends the adoption of either of the following courses, as representing with a fair measure of agreement the actual practice in Secondary Grammar Schools and as justifiable on psychological and educational grounds.

COURSE A

Year 1[1]
- I. The Preliminary Stage:
  - The Home District.
- II. The Transition Stage:
  - (1) The extension of the Home District.
  - (2) The Homeland.
  - (3) Introduction to World Geography.

III. The World Stage.

Years 2 and 3
- (1) The Southern Continents.
- (2) North America and Asia.

Year 4 — (3) Europe (including the British Isles in their European setting).

Year 5 — (4) The British Isles in detail and World Revision.

COURSE B

Year 1 — As above, in Course A.

Years 2 and 3
- (1) The Americas.
- (2) Asia and Australasia.

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[1] The work suggested above for Year 1 might be extended into Year 2. Note that the Formation of the Geographical Vocabulary is being carried on throughout the First Year, and, indeed, to some extent throughout the course.

Year 4 (3) Africa and Europe (including the British Isles in their European setting).
Year 5 (4) The British Isles in detail and World Revision.

5·5·2. The work of the Preliminary and Transition stages including the introduction to the World stage has already been fully dealt with.

5·5·3. In Course A the choice of the three Southern Continents for study in the lower forms is governed by the relative simplicity of their physiographic structure and of their division into climatic provinces, and also by the fact that their social and economic development is not complicated by a long period of growth in the past together with intense activity at the present day.

5·5·4. It is particularly important here that the age of the pupils should be borne in mind and the treatment suited to their stage of development. It is a fault not uncommon in teacher and textbook to demand too much knowledge of general physical principles in the first few years of the course.

5·5·5. On the other hand, young pupils have an active memory, and full advantage should be taken of this in providing them with sufficient material to form a good foundation for later study. For example, in the case of Africa they should be able to memorise and to locate the principal rivers, towns, and lines of communication, and the more important zones of economic cultivation and mineral working. The chief emphasis of the teaching should be on the *effect* of different climates on natural vegetation and human activities, not on the causes underlying the facts of climate.

5·5·6. In the following year more serious work may be attempted, and there will be less recourse to the memorising of facts.

5·5·7. In the case of North America, for example, the detailed work should be based on the principal climatic and structural divisions, the former being considered in relation to the great zones of economic crops and the latter in connection with the extraction of minerals. Time should be found for some reference to the influence of the Canadian

Shield on the two-sided development of Canada and the separation of settlers of French and British origin, and to the influence of the trans-continental railways in revolutionising the distribution of the world's food supplies and in redirecting the migrations of the surplus population of the Old World. The effect of the concentration of great power resources in the most densely populated districts on the development of manufactures should be studied in some detail, and that of site in determining the location of the principal towns should be noted. Owing to the wealth of information concerning Canada that is easily available, care should be taken to avoid over-emphasising Canadian Geography at the expense of that of the U.S.A. It is very necessary to avoid overloading the syllabus in this year, as time should be found for a somewhat more detailed consideration of the conditions which affect climate and especially for the reading of isothermal maps.

5·5·8. The regional treatment of the world concludes with the study of Eurasia, since it is only in the fourth and fifth years that the pupil is sufficiently advanced to appreciate the more complex nature of its physical, economic, and human Geography, not to mention its political interrelationships.

5·5·9. Many teachers prefer to divide the world into North-South zones, as in Course B, North and South America being taken together, Asia being grouped with Australasia, and Africa with Europe. This method has the advantage of enabling most of the major climatic regions to be covered in each year of the school course, with increasing attention to the underlying physical principles. The work on North and South America may be planned to bring out the simpler structural features of the earth's surface, the major land forms and the work of erosion and deposition, and to show the influence of such physical features and processes on Human Geography. That on Asia and Australasia, with their sharp contrast between desert and watered lands, may stress the influence of climate at a stage when some acquaintance with notions of temperature and pressure may be assumed; whilst the study of Europe and Africa may serve to recapitulate the major climatic regions as well as to introduce the more involved economic and political relationships of the nations of the Western World with one another and with their African dependencies.

The Curtailed Course

5·6·1. Although, as has been indicated above (paras. **2·1**, **2·2**), the Committee is strongly of the opinion that anything less than a five years' three-period course in Geography is of limited value in itself and is quite inadequate for a proper development of the subject up to the end of the general school course, it is not unaware that there are many Grammar Schools in which the teacher of the subject is under the necessity of confining his course not only to four years, but frequently also to two periods per week in some, if not all, of those years. Hence the Committee would not be fulfilling its function if it refrained from giving some guidance to such teachers as to how to make the best of the limited time at their disposal.

5·6·2. One of the main causes of such a restriction imposed upon the time allowed for Geography, which operated before the present regulations came into force, was the pressure of examinations in schools where pupils were expected to take their School Certificate Examination at the age of fifteen or where the age of entry was well above the normal. Since these conditions no longer hold there is still less excuse than formerly for curtailing the course. But the inertia of the time-table and the lack of understanding of the subject that is still shown by some headmasters make it necessary to retain this outline of a restricted syllabus. It should hardly be necessary to point out that the provision of the Curtailed Course does not imply the belief that its ojbect is merely the passing of an examination. Such a position is no longer tenable and, in any case, is directly contrary to the aims of Geography teachers as outlined in Chapter II, above, and particularly to that quoted in para. **2·16.** Geography taught under the limitations imposed upon it by the "examination complex" can be a preparation neither for living nor for life.

5·6·3. With this understanding, a four years' course may be planned as follows:—

Year 1. Essentially as in the five years' syllabus of the Committee's recommendations (para. **5·5·1**), with, if necessary, some abbreviation in the treatment of the Homeland in view of the fact that the British Isles are studied in detail at a later stage. The Introduction to World Geography, owing to the important function it performs in arousing the young pupil's interest, should on no account be omitted.

Year 2. The Southern Continents, or, where two periods only are available, Africa and Australasia.

Year 3. North America and Asia, or, in the case of two periods, the Americas and Monsoon Asia.

Year 4. The British Isles in detail, Europe, and what World Revision is possible.

The Americas are sometimes taken in the second year and the Southern Continents in the third, but the above scheme, for the two-period course, has this advantage, that in the third year, since Africa and Australasia have already been dealt with in some detail, it is possible to dispose of South America in about half a term. In any case it is not suggested that any of the continents can be treated in sufficient detail.

5·6·4. In spite of the attitude of mind of those who advocate such an abbreviated course, where it *is* in force the cultural object of the course must be kept firmly in view, and what must suffer is rather the ground to be covered than the interest and the educational value of the subject.

The Final Year of the General Course

5·7·1. The character and arrangement of the fifth-year work was, under the old conditions, only too often largely governed by the requirements of the School Certificate Examination; in some schools, indeed, the necessity imposed on the teacher of obtaining credit passes at the examination had distinctly harmful effects. Although this danger has been or should have been removed by the recent changes in the regulations, it will probably be long before all the influence formerly exerted by pending standardised external examinations on the planning of Geography teaching in Secondary Grammar Schools will be altogether lost. In the first and second editions of this Memorandum such influence necessarily loomed large, and it has not been easy to modify the arguments and adjust the conclusions there presented, especially in view of the inevitably experimental character of the new examination with its three-tiered standard. It is, however, the Revising Committee's hope and belief that examination influence will play an ever diminishing part in determining the Geography syllabus.

5·7·2. Whatever may be the consequences of the suggestion that the Secondary Grammar School course should in the future be based on a seven-year school life and that the syllabus should be planned accordingly, the fact that relatively few of the pupils will be in a position to specialise in Geography to an advanced stage justifies the retention, so far as this Memorandum is concerned, of a general five-year course for the great majority of pupils. With the removal of the main incentive to cramming in the fifth year of the course much greater elasticity should be possible in planning the work: and indeed it is to be hoped that not a few teachers will be found who will use their relative freedom to include some worth-while local study as well as to explore fresh avenues in their general treatment of the subject. When, however, it is realised that the fifth year is the final year of Geography teaching for the majority of pupils, it will be clear that a course which aims at giving a broad knowledge of the world of to-day, providing both a foundation for a considerable variety of subsequent specialisation and an equipment for the duties of citizenship in its widest sense, is highly preferable to a course which concentrates attention on a limited area. It is in view of these considerations that this Committee recommends for this year (as indicated on p. 61) some revision of World Geography and a study of the British Isles.

5·7·3. The study of the British Isles, although it should take the form mainly of a systematic treatment of the structural sub-regions of Britain and their interrelationships, may well conclude with, or be introduced by, a review of the whole country in its world setting, and thus form a connecting link with the world revision. Time should be found if possible for some of the following considerations: (i) Colonisation by clearing the forests, draining the marshes, and enclosing waste lands and common pastures; (ii) the opening up of trading relations with the whole world as a result of the age of discovery and Britain's command of the sea approaches of western Europe; (iii) the high standard of agricultural work as a result of climatic advantages and of the influx of refugees from the Continent; (iv) the supreme advantage which Britain enjoys in the possession of coal and iron deposits at or near tidal water; (v) the loss of the advantage due to Britain's early start as a manufacturing nation, over-population giving rise to emigration on a large scale and to the difficult problem of unemployment; and (vi) present-day modifications in agricultural and manufacturing practice as an attempt to readjust the nation's activities to modern economic conditions.

5·7·4. The principal difficulty the teacher has to face in dealing with the British Isles is to arrange that all the important topics of British Geography shall receive attention during the very inadequate time usually given to the subject at this stage. The great basic industries should receive something more than a summary treatment, and broad questions, such as the importance of British trade, should not be ignored. The rise of London and Liverpool to the rank of world entrepots and their relative decline with the development of the submarine cable and wireless communication should be noted, the dependence of our trade balance on the export of capital and on our shipping services (which are in turn dependent on the cheapness of export coal) should also be considered, if possible, and the picture should be brought up-to-date by reference to the rationalisation of commerce and manufacture by the elimination of wasteful methods.

5·7·5. Again, it is the opinion of the Committee that the fifth year should include such new work as is necessary to complete the study of the world as a whole. The best type of work in the fifth year is that which keeps the pupils' attention fixed on the fundamental principles of Geography, the contrast between highland and lowland, the effect of differences of race and culture, the ever-present stimulus due to differences in climate and natural resources, and at the same time the inter-dependence of the various parts of the world, thus leading him to recognise that the well-being of the human race as a whole depends on the well-being of *all* the peoples of the world.

5·7·6. The major climatic regions should be studied and the summary of each continent should include the main features of relief, drainage, communications, density of population, and mineral, agricultural, and manufacturing resources. In the case of Europe, also, the salient features of economic and social development should receive attention. There is hardly sufficient time to deal adequately with all the important sites outside the British Isles, and the only ones which should be studied in detail are those which fall within the category of world-cities, such as Istanbul, Rome, Paris, Berlin, Moscow, Peking, Shanghai, Bombay, Buenos Aires, New York, and London. The proper place for the detailed analysis of purely national cities is the Advanced Course. Many interesting problems will arise at this stage, and although few of them can be considered in detail in the short time available, the mere mention of them may stimulate the more thoughtful pupil to further reading. In the meantime we may rest content if the pupil completes his course with a wide and not inaccurate knowledge of the world as the home of man.

Correlation with other Subjects

6·1·1. One of the characteristic features of modern education has been the tendency toward specialisation, both in the selection and in the handling of the subject-matter. Though specialisation is desirable and, to a certain extent, inevitable, it involves a possible danger that the knowledge so gained may be kept in watertight compartments. Not only does Geography act as a link between human and naturalistic studies, but it also brings out important aspects of life the study of which, though desirable in a Secondary School curriculum, cannot always be given a separate place on the time-table. Geography, more than any other subject, demands of the teacher a wide acquaintance with the matter and method of other branches of the curriculum. With few exceptions, replies to the Committee's questionnaires expressed the opinion that Geography should be regarded as a pivotal subject, and there was general agreement as to the possibility of establishing some degree of correlation with the work in Classics, Economics, English, Handwork, History, Modern Languages, Mathematics, and Natural Science.

6·1·2. The extent to which different subjects can be linked up varies greatly and, under certain circumstances, it is possible to carry the idea of correlation too far. In the majority of Secondary Schools there is no time to waste, and it is only when the study of the border zone between two subjects can be shown to sustain and develop interest in both that there is any likelihood of successful co-operation between the teachers of related subjects. Effective co-operation depends upon the personal relationships which exist between the teacher of Geography and his colleagues.

Even where circumstances are most favourable, it requires the constant exercise of tact if joint action is to be secured. Where initial difficulties have been overcome, broad views are established and school studies can be brought together in a concrete philosophy in which the universe is seen as a unity. In a general course in Geography it is possible to establish many points of contact with other subjects, and the following suggestions have been compiled in order to assist those teachers who wish to link up their work with what is being done in other departments of the school.

Lower Form Work

6·2·1. In the lower forms, the scheme of work in Geography may include questions of direction, scale, relief, and the interpretation of maps. These may receive attention in the Mathematics course, where they will be considered from a different point of view. The magnetic compass, which is used in Geography for finding the direction of the meridian, may be explained in the Science laboratory, where lessons will also be given on the measurement of temperature and pressure by means of the thermometer and barometer, actual readings of these instruments being taken as part of the work in Geography. The work at this stage frequently includes the consideration of night and day, longitude and time, but the proper explanation of these phenomena, and of latitude also, is best deferred until the pupil has some acquaintance with the Geometry of the circle and perhaps with some of the elementary properties of light. Some of the apparatus and models used in the earlier part of the Geography course may be made during the lessons in Handwork.

6·2·2. Where the course in History covers the History of the World, the early lessons may deal with the ancient civilisations of Babylon, Egypt, Greece, Phœnicia, and Rome as far as the collapse of the Roman Empire. In connection with the struggles of mediæval Christendom against the nomads of Asia—Arabs, Tartars, and Turks—the Desert, Mediterranean, Forest, Grassland, and Steppe regions of Europe and Asia may be selected as suitable subjects of study in order that the regional work in Geography may form a background for the work in History.

Middle and Upper Form Work

6·3·1. It sometimes occurs that the regional study of America takes place in the forms which are studying the Age of Discovery and the transfer of trade from the narrow seas to the oceans. In this case correlation is easy, and the work in History can be extended to include the establishment of European colonies and trading settlements on the coasts of America and Africa, the geographical influences involved being dealt with in the Geography lessons. The History course may deal with the results of the wars of independence, the establishment of the United States and Latin American republics and the Monroe Doctrine. The American-Canadian boundary lines will be taken as examples of undefended frontiers established by arbitration.

6·3·2. At this stage a great deal of Physical Geography will be treated incidentally in connection with the regions of America, and it is desirable that the course in Science should contribute ideas on the physical effects of freezing and regelation, plasticity, and chemical solubility in order to shed light on the problems of mountain-building, volcanic action and denudation as they are treated in Geography. It is also possible to make use of the geometrical ideas of parallel lines and of tangents to a circle in connection with the measurement of latitude, longitude, and time, and with the study of the motions of the earth and their effects. It is doubtful whether the causes of the seasons can be properly understood before this stage is reached.

6·3·3. In the fourth and fifth years many schools pay special attention to the details of the British Isles, questions of climate, vegetation and agriculture, fisheries, minerals, industries and population, communications, and trade being reviewed. The History course may deal with the period of the industrial revolution and, possibly, with the history of modern times, both being subjects which allow for close co-operation between the teachers of History and Geography. The Chemistry course may include some consideration of the chemistry of iron, non-ferrous metals, fertilisers, and foods, and the Physics lessons may have some reference to the generation of electricity. The elements of statistical methods of diagrammatic illustration afford some contact with the Mathematics course; but the subject which is using much of the same material to illustrate its principles is Economics, now recognised by examining bodies as a school subject. In this case formal correlation is not advisable, but if the teachers of Economics and Geography freely exchange notes of what each is doing, it will be found that there are many, sometimes unexpected, points of contact where the pupils discover that they are covering the same human experiences from different points of view. Thus the geographical problem of localisation of industries is often found to be another way of looking at the economic question of the territorial division of labour, and the subject of exchange is found to have both geographical and economic sides.

6·3·4. In the Advanced Course similar material finds a place in several subjects, and it is often found that the best geographical account of a region, say of France or Belgium, is to be found in a book published in the French language. Obviously, the teacher of Modern Languages should consult the teacher of Geography and vice versa where the two subjects form part of the same course. Similar considerations affect the co-operation of the Geography and History teachers, but, as a rule, it is found that correlation is not easy in Advanced Course work. Each of the constituent subjects is becoming more specialised, and there is little time for more than a few passing cross-references. In the past there have been cases where correlation has become a burden through its artificial nature; and it is necessary to bear in mind that whatever correlation is carried out should be natural, and should be undertaken with the object of giving broad views, so that the curriculum may be linked into a practical whole instead of a series of isolated and specialised parts. The importance of Geography as a subject for correlation is that it brings the abstract conclusions of other subjects into touch with the actual; but it is very improbable that any comprehensive scheme of correlation can be developed. The teacher should be content if he is able to maintain contact with what is being done in other subjects and has some acquaintance with the methods of teaching used in those subjects most nearly related to his own.

Geography or Geographies?

7·1·1. Specialisation in "departments" of Geography is fortunately declining. It has been common in the past to devote a special section of the course to particular aspects, such as Physical Geography, Mathematical Geography, Climatology, or Commercial Geography, but from the point of view which regards Geography as a synthetic subject it is clear that the study must proceed on a regional basis; for it is in the conception of geographical regions that the synthesis is, in practice, realised. The particular facts or principles of Physical Geography, of Climatology, or of Economics should be introduced as they are felt to be appropriate to the need of giving to the region studied its special character. This does not, of course, preclude the possibility of generalising in connection with similar phenomena which may be recalled from earlier regional studies, and indeed the constant reference to earlier work is essential if the value of Geography as an educational instrument is to be maintained. As many links as possible must be forged in order to bind the different and otherwise isolated regions of the world into a whole. Specific emphasis on particular aspects of Geography tends to direct attention away from those interrelations that give Geography its special character.

7·1·2. Nevertheless, the different aspects of Geography cannot be ignored, and it is advisable to consider them in turn and to note how and when particular principles can best be introduced into the general course.

The Place of Physical Geography

7·2·1. Enough has been said already to justify the Committee's support of the view that physical conditions should be studied not primarily for their own sake but in order to provide data for Human Geography. The work of the Geography teacher is to bring to the study of man's life and work the results of scientific investigation in so far as they lead to an understanding of the conditions which control, influence, or obstruct human activity, and of the limits within which the human will is able to operate. It must be recognised, however, that it is impossible to explain all the actions of mankind in simple terms of Physical Geography. General statements as to the nature and extent of "geographical control" seldom develop beyond the stage of hypothesis, since the incalculable influence of human initiative renders such generalisations futile and misleading. What the school can do, however, is to give to its pupils some ordered conception of the Physical Geography of the world into which they can fit their own experiences and in which they may find such explanation of both local and world conditions as will lead to rational judgment and sane action.

7·2·2. On the other hand, it may be argued that it is impossible to teach Geography in any of its main aspects apart altogether from the physical basis. Even in these days of man's conquest of nature, his life is still largely conditioned by his physical environment, and his social, political, and commercial activities cannot be satisfactorily explained without constant reference to the physical facts on which they so largely depend. After considering the replies furnished by correspondents in all parts of the country, the Committee believes that the majority of teachers in the Grammar Schools of England and Wales do, in practice, adopt the "incidental" outlook, though a few devote some definite part of the course solely to the physical aspect of their subject. The incidental treatment of Physical Geography is in the main the more logical, scientific, and effective method in the general course; though there are exceptions, as will be pointed out later, and in the Advanced Course it may be advisable to treat Physical Geography as a separate branch of the work. Most modern text books are planned on a regional basis and do not treat Physical Geography as a separate subject, but endeavour, as they proceed, to give as complete a picture of all aspects of the area with which they are dealing as the scale on which they are written will allow.

7·2·3. With this in mind, there is no reason why in teaching, say, the monsoon area, a preliminary lesson or two should not be given on the nature of the monsoons, on their seasonal variations, on the relation between wind direction and pressure in the area, and on the connection between wind direction and rainfall, the amount of detail depending on the stage at which the area is taught. An introductory picture may thus be obtained of some of the most important features of the physical environment in which the inhabitants of the monsoon countries work and live. The same plan may well be followed, *mutatis mutandis*, in dealing with other areas with a well-marked physical environment. This we should consider to be consistent with the "incidental" treatment of Physical Geography.

7·2·4. Only those aspects of Physical Geography which directly affect human activity need be included in the general course. Man cannot exist except within a few miles of the surface of the earth, and the vast majority of the world's inhabitants lives within a quarter of a mile of the level of the sea. It is clear, therefore, that our work in Physical Geography must concern itself principally with what is occurring or may occur at or near the earth's surface. The sciences of Astronomy, Geology, Meteorology, and Oceanography contribute some of the matter needed in our treatment of Physical Geography, but only in so far as these sciences bear upon conditions near the inhabited surface of the land. Man is not an aquatic animal, so that conditions in the abyssal depths of the oceans merit little or no attention at this stage; but he is directly affected by what happens near the surface of the sea in his fishing and trading, and it is important therefore that some reference should be made to the nature, extent, and movements of the waters which cover more than half the total surface of the globe. The lower layers of the atmosphere, too, are of increasing concern to mankind: but the detailed study of meteorological conditions is not considered necessary or advisable before the Advanced Course by the majority of teachers. A knowledge of the simpler meteorological instruments and their use and the application of climatological data to regional characteristics are regarded as sufficient for the general course. By far the greater part of the work in school physiography is concerned with the condition of the surface of the land, but, even in this case, attention should be directed mainly to a limited number of established facts and only incidentally to the method by which our knowledge of the facts has been acquired.

7·2·5. The elements of Physical Geography which are needed in the general course fall into two main groups—the structural and the climatic. The former involves some consideration of the different types of surface relief and a classification of the principal land forms. The latter is concerned with the condition of the atmosphere in all parts of the world and attempts to account for the distribution of the vegetation on which man's existence ultimately depends. Outside the elements of morphology and climatology very little Physical Geography need be considered as essential in the five-year course, though it is useful also to note the apparent movements of the sun in illustration of the rotation and revolution of the earth and the recurrence of the seasons.

Where time admits, however, the scope of Physical Geography may well be extended to include in outline the general stratigraphical succession of the rocks of the British Isles, the elements of plant ecology, and some weather science; but these subjects should be studied only where the teacher possesses special knowledge, and is able to show the interrelation between biological, geological, and meteorological factors and Human Geography. If there is close co-operation with the teachers of Physics and Biology, much of this border-line work may be done in the periods devoted to other subjects; but it is often difficult to obtain, just when it is wanted, the help of those who possess the special knowledge required. On the other hand, some repetition of a subject from the points of view of different specialist teachers is not without its value.

7·2·6. The Mathematical and Physical Geography of the Preliminary Stage has already been dealt with under "The Formation of the Geographical Vocabulary." By the end of the second year it should be possible for a pupil to read any ordinary atlas map, finding the positions of places from given latitudes and longitudes, and identifying the principal physical features shown. He should be capable also of reading with ease a simple one-inch Ordnance Survey map of his home district and of pointing out the land-forms to be found therein. In these lower forms, the work in climate is of two kinds—the incidental study of climate and the direct observation of weather. At this stage it is inadvisable that the study of climate should be of a formal character. It should rather consist of a description of such details of climate as will lead children to understand something of the lives of men in many lands. Where the life of people who inhabit a particularly well-defined environment, such as the desert, is described, a consideration of climatic influence is implicit. In the second year, reference may be made to the great wind and rain belts, but no explanation of these belts should be attempted with junior forms. During the first two years the pupils should make direct observations of the weather. By devoting a short period to the systematic observation of wind, cloud, temperature, pressure, and rainfall, and to the recording of the results, an accurate scale of values is acquired to which descriptions of distant climates may be referred. The notion of mean temperature and rainfall—annual or monthly—may be introduced, and results may be recorded in graphic form.

7·2·7. In the middle forms (ages 13-14) it is possible that a first study of the world will be completed, at any rate in outline, and illustrations of Physical Geography may be drawn from any of the regions which have been or are being studied in the regional scheme. We have to bear in mind that the fifth year may be occupied mainly by revision and consolidation of the work done in the preceding years, and that even where there is no attempt to make the final year of the general course a revision year, there will be little time for aspects of Physical Geography which have not been dealt with in the first four years. It is necessary therefore that the work in Physical and Mathematical Geography should be completed by the end of the fourth year. In the third year the pupils should be familiar with the properties of parallel lines, and it should be possible for them to understand that, for all practical purposes, rays of light coming from a very great distance are to be regarded as parallel. This makes it possible to demonstrate the directions of the sun's rays between the solstices and, in consequence, the relative intensity of insolation during the summer and winter half-years. The latitude of the school may be determined from the sun's midday altitude, both as a theoretical exercise and also as a practical experiment, the pupils being taken out into the school field to make the necessary measurements. Some time should also be given to the study of six-inch and one-inch maps throughout the middle forms.

7·2·8. In the third year, too, the study of physiography will be carried a stage farther, and it is possible to make a simple classification of the principal land-forms, examples of which will be found in the countries studied in the regional course. The continent which lends itself best to the incidental study of land-forms is America, the surface of which includes examples of shields, tablelands, denuded highlands, and fold mountains, together with structural, denuded, and alluvial lowlands and a variety of coast types. Moreover, America contains examples of crustal movements and denudation (including the work of large ice sheets and valley glaciers) which are of a striking character; and there is a vast number of pictures which the teacher may use as illustrations in his lessons.

7·2·9. In the middle forms it has become a common practice for the preliminary study of a continental area to deal with the major climatic zones, vegetation belts, and structural regions, although, when areas are studied in detail, greater attention may be paid to the influence of land forms on living conditions, in many cases the units chosen for detailed study being physiographic regions, such as the Canadian Shield and the Prairie Provinces. The middle forms will begin to familiarise themselves with the idea of "climatic regions." The position of the wind, rain, and vegetation belts on the eastern and western sides of the continents will be systematically studied, entailing an explanation of the phenomena of winter and summer rains. At the appropriate point of the course the influence of warm and cold currents on climate should be noted. At this stage also it is advisable to introduce the idea of isotherms which may be plotted by the pupils as an exercise in making distribution maps. The broad relation between elevation and temperature should be known, and the reduction of actual to sea-level conditions should be familiar. The pupil ought now to be able to identify, from the mean monthly temperature and rainfall figures, the approximate position of a station which possesses well-marked climatic characteristics. The importance of noting diurnal maxima and minima apart from mean temperatures should be stressed, and the effects of seasonal distribution of rainfall should be brought out. In temperate latitudes the average length of period free from frost should be noted in relation both to the natural vegetation and to the crops cultivated within the area.

7·2·10. In the upper forms (15 to 16), the pupils should be able to undertake the serious study of the general geography of a continental area which exhibits some complexity of structure, in addition to the detailed geography of the British Isles. As in the middle forms, the pupil should be able to distinguish between fold mountains, dissected highlands, tablelands, etc. The more important effects of river action and glaciation should be noted and the different types of valleys recognised from contoured maps. It should be possible at this stage to place before the pupils an outline classification of the rock strata of the British Isles. Without going into too much detail, five main groups may be noted—the Archæan, Primary, Secondary, Tertiary, and Quaternary systems—and the rocks may be distinguished as older or younger than the Coal Measures. There is neither time nor need for the study of Geology, but the structure of the principal coalfields might be noted, and the detailed study of the British Isles should include its subdivision into physiographical sub-regions, each of which may be regarded, for teaching purposes, as a unit in the study of Human Geography. Special attention should be given to the scarplands and to the influence of the juxtaposition of highland and lowland on human activities and the distribution of population. In these forms, again, the emphasis will not be so much on the physical basis as on the human response. The mineral resources will be considered mainly as factors in the localisation of industry and development of trade, the existence of gaps in highlands not as interesting examples of faulting or denudation but as natural routes which man has utilised for his roads, canals, and railways. The fact that the British Isles lie on a continental shelf will lead to some consideration of tides, coastal erosion and deposition, and to a recognition of the suitability of the North Sea as a fishing-ground.

7·2·11. By the time that the pupil has reached the fourth year, he should know sufficient of Physics to appreciate the principles which underlie the study of climate, and there is no reason why the causes which affect climate should not be classified. Moreover, he is now in a position to understand the method of making a synoptic chart of the weather conditions he experiences. In the past the serious study of the weather chart has been much neglected, but if atmospheric pressures are plotted on outline maps, isobars drawn, and wind directions inserted, the connection between pressure and wind direction may be noted and the general laws governing wind direction deduced. The prevailing types of weather experienced in North-west Europe may be identified. In fact, when the enormous importance of cyclonic disturbances is considered, it is difficult to justify our neglect to teach our pupils to recognise the principal types of weather. This does not mean that we should try to teach the cause of depressions. The study of this branch of meteorology was greatly developed during the two world wars, but it would be necessary to await a proper formulation of recent conclusions before attempting to introduce such matter into school Geography even if it were, in any case, advisable. We can, however, and should make the pupil understand the weather map, not only in order that he may appreciate that the bulk of the rain which falls in our lowland districts is of cyclonic origin, but also that he may be able to make practical use of his knowledge in his everyday life.

7·2·12. In dealing with the areas studied in the fifth year it is improbable that much new work in Physical Geography will be undertaken; but the great structural and climatic divisions of the continents will be revised. Those countries which occur at the junction of climatic regions will be divided into climatic sub-regions, but the detailed study of other aspects of Physical Geography need receive but slight attention at this stage.

7·2·13. What has been outlined above has no pretensions to completeness. Simple ideas of map projection, for example, based on comparisons of lines of latitude and longitude on the globe and on the atlas map may possibly be introduced into the course, though, judging from our correspondents' replies, such work, if undertaken at all, will be deferred to the Advanced Course. Some teachers, on the other hand, will find the scheme too ambitious, and will be disposed to cut out altogether, or greatly curtail, some parts of it, especially such as have no examination value—work on weather charts, for instance. But it is a scheme that has actually been worked, and that experience shows can be covered in the general Geography course without neglecting the systematic regional treatment of the world as a whole.

The Place of Historical Geography

7·3·1. Geography is mainly concerned with the observation, recording, description, and interpretation of certain classes of facts and with their effect on human life. These are essentially facts of distribution on the earth's surface, that is to say, in space. History is concerned rather with events; but as every event occurs in space as well as in time, it follows that, though their attention is directed to different aspects, both the Historian and the Geographer are interested in the sum total of the events which make up human experience. Other branches of knowledge, however, are only of value to the Geographer in so far as they throw light on the nature, the origin, or the effects of the distributions with which the subject is more directly concerned.

7·3·2. Historical Geography is the study of the influence of History on geographical facts, e.g., the effect of the building of the trans-American railways on the distribution of crops and populations on both sides of the Atlantic Ocean. Geographical History, on the other hand, is the use of the facts of Geography in the interpretation of History. This distinction has some importance in university studies, but, from the point of view of the Secondary School course, it does not matter whether what is taught is Geographical History or Historical Geography, as both subjects involve an analysis of geographical conditions.

7·3·3. The danger of over-generalisation on the question of "geographical control" has been referred to above. Sweeping statements as to the importance of such control on the events of History may well be challenged by the Historian, and it is the business of the teacher of Geography who proposes to include in his course some work on Historical Geography or Geographical History to equip himself with something of the technique and knowledge of the Historian. That this can be done successfully is shown by the number of schools where excursions are made into the borderland of History and Geography, especially in the lower forms, where the geographical background of the early civilisations may be studied at the same time as their history. In this lower-form work it is possible to make the everyday life of Babylon, Egypt, Phœnicia, Greece, and Rome as real as that of India or Central Africa to-day. The influence of the great explorers, too, on Geography, and of geographical conditions on the direction and extent of their discoveries, are subjects on which geographers and historians agree.

7·3·4. In the middle and upper forms, however, subjects of common interest are less easy to discover, and it is only in those schools where the history of the world is studied that the work in Geography can be made to supply the geographical background throughout the school course. Even in the cases where world History and world Geography are studied side by side, marked differences of treatment occur, especially as History is generally studied chronologically, beginning with the Stone Ages and ending with the modern world. The early evolution of mankind was largely controlled by geographical conditions, but as time went on and conditions throughout the world became more uniform, geographical factors became less and less important, and man's progress became more and more subject to the dominating force of the human will.

7·3·5. This principle may be brought home to the pupils in middle and senior forms by a few illustrations. The building of St. Petersburg, the organisation of the great steel industry of South Chicago, the transplanting of dates and figs to Arizona and California and of rubber to Malaya, the cutting of the Panama Canal, and the fact that it was only when water supplies were brought in from outside that London's habitable area ceased to be limited to the banks of a few small streams and to patches of water-bearing gravels, are all excellent examples of man's emancipation from geographical control.

7·3·6. Nevertheless, there are topics in which modern History and Geography are alike interested. The study of the development of the British cotton industry, for example, demands some knowledge of the geographical factors which determined its direction and progress, but it also demands some knowledge of History. A discussion of the problem as to whether this study should be dealt with as History or as Geography might help to throw light on the wider question. Let us consider the principal factors which affected the industry's development:

(1) The opening up of Levantine and East Indian trade during the seventeenth century brought to this country specimens of cotton cloth which were valued for their fine texture and design. The chief ports concerned with this import were London and Bristol, and, later, Liverpool and Glasgow.

(2) The demand for cottons was greatly stimulated when Puritan rule was relaxed at the Restoration. Prices of cotton and silk cloths were high and, in the neighbourhood of the ocean ports, small industries grew up in order either to produce a cloth whose texture resembled that of the imported article or to print designs resembling those of the countries from which manufactured cottons were received. These early British cotton industries were localised on

streams, such as the Wandle, which possessed water suitable for washing or for power used in driving the simple machinery needed.

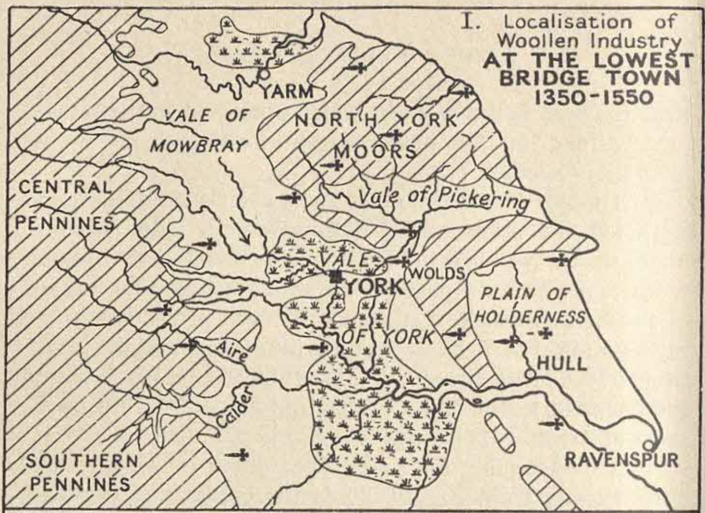
(3) Though cotton cloth was a luxury, it was popular, and attracted the attention of a Government determined to maintain the woollen industry, our most important manufacture. As a result, restrictions were placed on the import of finished cloths. This measure afforded protection to the little cotton-weaving and printing industries; and the inventions of the later part of the eighteenth century made cotton the cheapest textile raw material and British machinery the most efficient in the world.

(4) Unreasonably high port dues drove bulk cargoes of cotton away from Bristol, while the application of steam power to spinning and weaving hindered the expansion of the cotton-printing industries of the London district and stimulated the industries near the ports of Liverpool and Glasgow, where coal was easily accessible. The development of the steamship on the Clyde made the Scottish cotton industry less intensive than that of Lancashire, where the makers of machinery kept in close touch with the spinners and weavers.

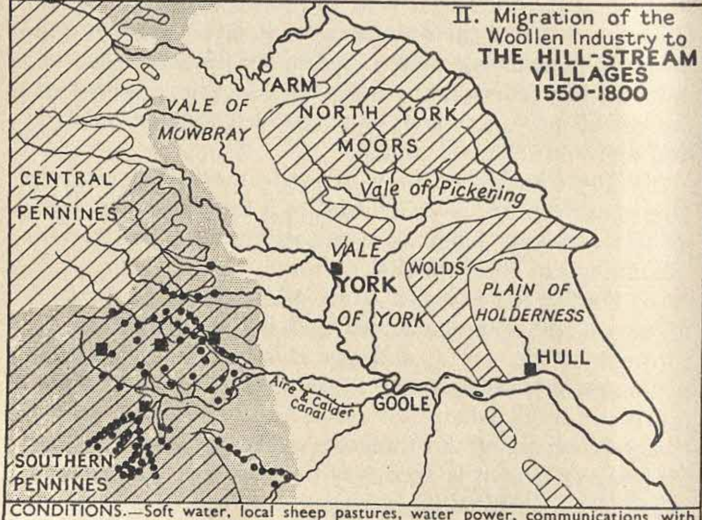
(5) The opening up of world-wide markets during the nineteenth century gave Lancashire a long lead, especially in India, where the native industry was ruined by the "dumping" of cheap English cloth.

(6) During the past fifty years a knowledge of the technique of cotton manufacture and marketing has spread throughout the world, and our chief market, Asia, now possesses industries which consume more than twice as much cotton as Britain.

7·3·7. Much of the foregoing is History and much is Geography, and it is necessary to determine whether it is possible to separate the geographical from the historical aspects. Should the Geography teacher combine with his discussion of the geographical conditions some study of the historical factors which have modified every stage in the

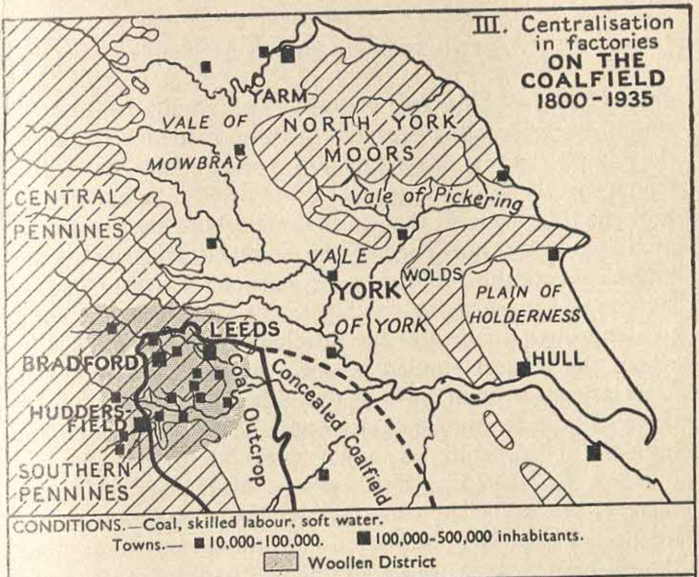


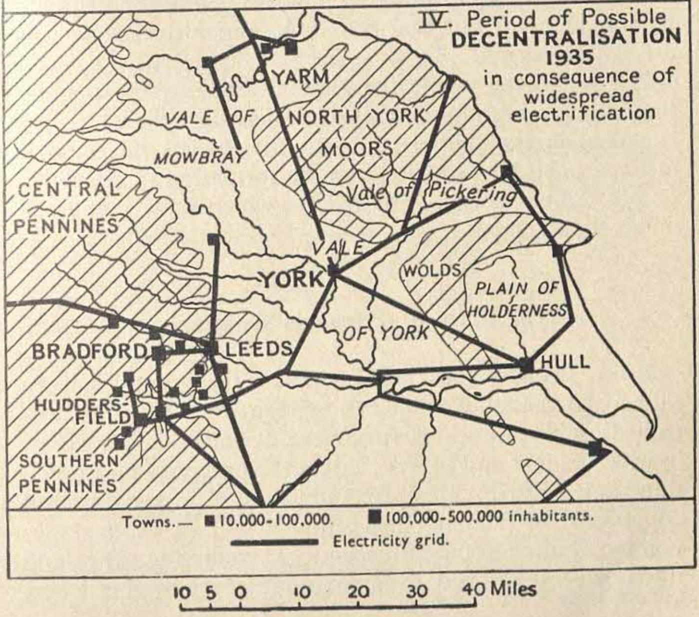
CONDITIONS.—Abundance of wool fleece, existence of labour supply, local market.
■ More than 10,000 inhabitants in 1377
○ Small Townships. ✝ Principal wool-producing abbeys.



CONDITIONS.—Soft water, local sheep pastures, water power, communications with London and foreign markets by means of Aire & Calder navigation.
■ Towns of more than 10,000 inhabitants • Water mills. ○ Small Townships.
▨ Area of soft water springs issuing from Millstone Grit and Coal Measures

FIG. 5.—THE DEVELOPMENT OF THE YORKSHIRE WOOLLEN INDUSTRY.


III. Centralisation in factories ON THE COALFIELD 1800 - 1935
YARM
VALE OF
MOWBRAY
NORTH YORK
MOORS
Vale of Pickering
CENTRAL
PENNINES
VALE
YORK
OF YORK
WOLDS
PLAIN OF
HOLDERNESS
HULL
LEEDS
BRADFORD
HUDDERS-FIELD
SOUTHERN
PENNINES
Coal
Outcrop
Concealed
Coalfield
CONDITIONS.—Coal, skilled labour, soft water.
Towns.— ■ 10,000-100,000. ■ 100,000-500,000 inhabitants.
▨ Woollen District


IV. Period of Possible DECENTRALISATION 1935 in consequence of widespread electrification
YARM
VALE OF
MOWBRAY
NORTH YORK
MOORS
Vale of Pickering
CENTRAL
PENNINES
VALE
YORK
OF YORK
WOLDS
PLAIN OF
HOLDERNESS
HULL
LEEDS
BRADFORD
HUDDERS-FIELD
SOUTHERN
PENNINES
Towns.— ■ 10,000-100,000. ■ 100,000-500,000 inhabitants.
Electricity grid.
10 5 0 10 20 30 40 Miles

development of this, our greatest export manufacture, or should he neglect the problem of development because of the complex nature of the factors involved? The view of the Committee is that each teacher must decide the matter for himself. If he believes that, in the interests of the education of the child, a knowledge of the main historical and geographical conditions of the past is needed for a clear understanding of present-day conditions, he should devote time to a thorough analysis of the problems involved, especially where the subject studied is one which has strong local associations. In such cases as these the main points can be driven home by simple sketch maps, e.g., of the woollen industry of Yorkshire, as shown on pp. 86, 87.

7·3·8. On the other hand, where the teacher feels that there is not sufficient time for the historico-geographical method of approach, he should not attempt anything more than a brief analysis of geographical conditions, although he should point out that economic and historical factors are also important.

7·3·9. On the whole the Committee is of the opinion that, though the amount of Historical Geography which can be taken in the school course is limited, its inclusion is justified in so far as it prevents the formation of one-sided or misleading views of the factors which have influenced man's development.

The Place of Economic Geography

7·4·1. Broadly speaking, Economic Geography may be said to be the study of man's economic activities as controlled by his physical environment. It endeavours to show in what manner and to what extent the processes of production and distribution are influenced by geographical conditions. In pursuing this study it will be necessary to point out many apparent exceptions, where industries and trade have developed in unfavourable geographical surroundings, or where favourable geographical conditions have failed to establish that form of economic activity which they would seem best fitted to promote. In such cases economic conditions have dominated geographical influences, and for the proper appreciation of the causes which have led to such apparent anomalies some knowledge of economic principles seems necessary. But the geographer should remember that his primary concern is with Geography, and should strive to confine his excursions into the field of Economics to as limited an area as possible. The results of Economic Science rather than the processes of argument by which these results have been established will be his main concern.

7·4·2. As an example, consider the case of the production and marketing of Canadian wheat. If the teacher confines himself to an exposition of the geographical conditions of production without reference to the problems of supply and demand throughout the world, he will be neglecting some of the most important factors that govern the wheat-growing industry in the Prairie Provinces. His subject-matter will fall under the heading of Regional, rather than of Economic, Geography: but special reference will have to be made to the relation between supply and demand, and for this purpose some knowledge of the laws regulating this relationship, as established by economic argument, will be necessary.

7·4·3. The following extract from a letter received from a distinguished teacher of both Economics and Geography is worthy of attention:

> "With reference to the subjects of Geography and Economics in Secondary Schools, though I would like, as a teacher of both subjects, to establish links between them, I cannot see how Geography can be made to serve Economics except in a general way, nor how economic questions can be systematically brought into the study of Geography without the risk of debasing it, or at least distorting it. Of course, a knowledge of economic principles is very useful in the study of some aspects of Geography,

but so also is a knowledge of Physics, Chemistry, and so on. I am inclined to think that the possibilities of correlation or combination between the two subjects in question is illusory as a consciously devised programme of far-reaching intent. But that is not to say that either subject will not throw useful light on the other. There is a much closer relationship, however, between Geography and History, and possibly also between Economics and History (with emphasis on Economic History), than there is between Geography and Economics.

The Geography of Production and Commerce is useful enough as a body of knowledge for business purposes, but has scarcely any cultural or intellectual value—how little can be judged from some of the American publications that reach this side. You see, I feel rather strongly on this matter. I think we should make a great mistake here in England if we tried to make Geography a mere adjunct to commercial activities, and would do well to follow the wider treatment that runs through the best recent continental work on the subject. While we must recognise that a knowledge of economic problems would prevent people from perpetrating some of the worst unfounded generalisations that appear in the so-called Economic Geography, Economics is better kept as a subject separate from Geography in Secondary Schools, because both the subject-matter and the method of treatment are so different."

7·4·4. With reference to this quotation it should perhaps be pointed out that the writer probably has in mind the abstract principles of Economics which, it must be admitted, have little bearing on Geography. For Geography deals mainly with the influences which determine man's activities, whereas Economics is concerned chiefly with the activities themselves, in so far as they are connected with wealth and thus arise out of man's own self-interest.

7·4·5. There are a few schools in which the Geography course includes a number of lessons in Economics and Economic History. In other schools the study of Economic Geography is substituted for the wider course in General Geography, although this is very unusual. It is the opinion of the Committee that Economics should be studied as a separate subject and not as part of Geography, and that, except in special circumstances, Economic Geography, as such, should not be taught before the Advanced Course.

The Place of Social Geography

7·5·1. In the past Human Geography has been largely concerned with the regional study of man in relation to his environment. Emphasis has been placed mainly upon men as individuals, not as members of society. It is noteworthy, however, that both in the universities and elsewhere attention is being directed increasingly to the Geography of social groups and the study of Human Geography from the individualistic viewpoint is giving way to that of Social Geography in which the aspect of the subject which places it among the humane studies is especially regarded. If the prime need of humanity is that society should be organised on a basis of peace, if the very existence of society depends upon the care with which its cultural heritage is preserved and modified, then the inclusion of Social Geography in the school course is fully justified. It is a rational approach to the study of society and provides standards to which the basic problems of community life may be referred.

7·5·2. Hitherto the study of man in his group relationships has been regarded as too difficult for inclusion in the general Geography course, but in certain respects it may be claimed that all school Geography, even Physical or Mathematical Geography, is Social Geography in so far as it bears directly on the life of man. But the term may be regarded as being more particularly concerned with the geographical aspects of community life and of man as a citizen of a locality, of a country, or of the world. The citizen of our own country to-day is confronted with important matters of planning which may be local, regional or national in scope with a most important bearing on the life and work of society. He cannot escape being interested in the use made of the world's resources; and here he is confronted with problems of colonial development and, in the international field, with ideological differences which, although in themselves outside the range of school Geography, have effects which are well within its scope. In this field he may well come up against urgent problems of frontiers, race, religion and national custom.

7·5·3. The amount of Social Geography that can be incorporated in the normal course inevitably varies with the subject-matter and arrangement of the course, but, generally speaking, it increases with the advancing age and development of the pupils. Social Geography "begins at home" in the form of Local Geography or local studies, but appropriate matters of Social Geography should be introduced as and when they naturally occur in regional studies. Neither "Current Affairs" nor "Social Studies" can be regarded as a substitute for Social Geography, introduced deliberately as an integral part of the course of Regional Geography. Inevitably a great deal of historical and other material is relevant, but the methods of study are those of the geographer.

7·5·4. Before bringing the social aspects of Geography to the attention of pupils it is necessary for the teacher to have clear ideas of the different forms of social organisation and the cultural characteristics of typical communities inhabiting the regions normally studied in school. According to Malinowski human culture is derived from man's basic needs and community life has been developed in order to protect and extend what has been achieved by co-operative methods. In dealing with primitive communities it is possible to trace the connection between such human needs as food and security and the cultural responses to which they give rise, and this work can be undertaken in junior forms. The study of more complex societies, however, should be deferred to later years, for it involves a careful examination and analysis of place, folk, and work—a task for which a training in geographical methods is needed. There is evidence of the need for such training in a new type of question in Geography now being set in public examinations. A recent paper included the following question: "Select a typical section of rural England and Wales, preferably a county known to you personally, and discuss (*a*) the pattern of human settlement—isolated farms, hamlets, villages, market towns; (*b*) the reasons for the pattern; (*c*) significant changes taking place." At the sixth-form level the pupils should have first-hand experience of the interrelationship between the community and its environment in areas of different types, but particularly in one that is densely populated or highly industrialised. Much experimental work is being done and there are many lines of approach to the problems of Social Geography, but whichever method is chosen the result should be to convince our pupils that communities and human groups, like individuals, are interdependent, and that the members of each group have moral obligations to each other, to the members of other groups, and to posterity.

Local Geography

7·6·1. There are few teachers of Geography to-day who do not realise that Local Geography should form an integral part of the Secondary School course. It is now happily the common practice to start the course as this Committee recommends,[1] with a study of the School District, profoundly useful in developing fundamental ideas of direction, elementary physical geography (especially relief), mapping on different scales, simple distributions and human response to environmental conditions. Thus may be developed not only a proper geographical outlook but also the beginnings of a useful geographical vocabulary. Of special importance is the basing of map study and map reading on the local maps on various scales. In many schools, however, Local Geography is confined to the Preliminary stage, although an increasing number of teachers find it of great value in sixth-form work whether the sixth form is preparing for an examination or not.

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[1] See p. 30 of this Chapter.

7·6·2. Some teachers have tended to avoid teaching Local Geography because of the "pressure of examinations," for which, under the more recent regulations, may be substituted "pressure of the time-table." This is felt to be very short-sighted by many whose experience shows that a closer appreciation of geographical principles and a fuller understanding of physical and economic conditions result from the first-hand observational work involved in local studies, which, indeed, is found to be of real assistance to the examinee at a later stage. The outstanding difficulty in practice is to keep up local work through the whole course, and here there is much need for experiment. It can confidently be said, however, that there is much to be gained by thus maintaining the local studies after the Preliminary stage, and this should be assisted by the greater freedom likely to arise gradually with the modification of examination requirements. The way in which it can be done will vary from school to school. One very interesting experimental syllabus submitted to the Committee was that of a Birkenhead school which makes use of the local industrial and farming activity in the survey of British and oversea production of important commodities, and includes a study of fuel and power, trade and trade routes, besides the study of the local physical geography. It should also be urged that local study towards the end of the course should be attempted with fair comprehensiveness. It should often be possible to consider the area in which the school is situated from the point of view of local planning in the modern sense; in this the civic aspect may well be prominent. Many schools would find useful and stimulating the study of "urban fields," as expounded in *Geography*.[1]

7·6·3. There is little danger of the teacher who seriously incorporates Local Geography in his course doing so at the expense of the study of World Geography, though this tendency may need watching. Study of and field work in areas of widely differing conditions are a useful corrective to a narrow outlook, and geographical ideas thus gained can readily be applied to the Geography of the wider world.

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[1] "The Analysis and Delimitation of Urban Fields," by A. E. Smailes, *Geography*, December, 1947.

7·6·4. Local Studies are sometimes criticised on the ground that they are apt to stray from the rightful domain of Geography into territory that belongs more properly to Civics or History. No doubt it is difficult to draw a hard-and-fast boundary, nor is it altogether desirable to do so. The Geography teacher will do well to regard that boundary as a zone rather than a line and to seek close co-operation with his colleagues who may be dealing with local history or with civics in their courses.

Political Geography

7·7·1. The political aspects of Social Geography are largely concerned with frontiers, capital cities, colonial development and state organisation, including the attitude towards the exploitation and use of natural resources. These are all significant topics for the cultural background of the citizen, but it is clear that their treatment must arise as opportunity offers in the regional course. It is true that the teacher often finds that he has plenty of regional work to do without being distracted by political boundaries, especially when the political divisions assume a complicated character: while the practice of treating the world on a regional basis undoubtedly leads to a tendency to neglect the "accidents" of Political Geography, a tendency which should be strenuously resisted, so that the political aspect has its due place appropriate to the stage of the course.

7·7·2. On the other hand, the teaching of Geography has often in the past proceeded on a political basis, each country being dealt with in turn after a perfunctory general treatment of the continent of which it is part. This method lends itself very inadequately to the regional treatment the World is revised in the last year. Too often "world revision" takes the form of covering the world and its regional geography in summary fashion—an abbreviated and arid treatment that lacks the vital spark. It provides, however, the opportunity for making clear many world distributions and problems that have a direct bearing on Social Geography. Matters of production and trade, population problems, strategic problems, standards of living, societies mainly industrial and those mainly agricultural, colonisation, "new" and "old" continents—these and many other topics of significance to the modern citizen will occur to every teacher. Perhaps it is not too much to hope that, in the future, the final year of the Secondary School course in Geography will be less of a formal revision and more of an intelligible and intelligent picture of the interrelationship of the varied peoples and problems of the modern world.

CHAPTER IV

TEACHING METHODS

1·1. Given the aims of Geography teaching and its content, it is probably true to say that no subject lends itself to a greater variety of treatment in the classroom. There is, indeed, little fear of the Geography lesson becoming a stereotyped process, or of any restriction on the free play of the Geography teacher's individuality.

1·2. On the other hand, the wide choice in teaching methods that the subject offers is itself a source of danger in that it may easily lead to a lack of precision, to a looseness and vagueness that are fatal alike to sound work and to the high standing of Geography among the subjects of the curriculum. It is very necessary that the teacher of Geography should have a clear idea in his own mind not only of what he shall teach but of exactly how he shall teach it at each stage of the course and at each step in the development of the particular study in hand. No report on the teaching of Geography, therefore, would be complete without some attempt at an analysis of teaching methods.

1·3. Geography by its subject-matter is allied, on the one hand, to the Natural Sciences and, on the other, to such humanistic studies as History and Economics, between which, indeed, it forms a sort of natural link. This being so, it might be expected that the teaching technique appropriate to it would find a place somewhere between the experimental method, with its emphasis on individual work, that is proper to the Natural Sciences, and the oral or class teaching method that is characteristic of the more purely humanistic parts of the school curriculum; and indeed, judging from the replies received from our correspondents, Geography teaching does occupy this intermediate place. For though, in actual practice, the oral method is the more frequently used, the principle of individual work seems to be widely adopted and its value generally recognised by Geography teachers.

1·4. It may be contended, and a number of replies seem to bear out the contention, that, under ideal conditions in which the teacher would have complete liberty of action, the individual method would be even more widely used. Many would advocate it as being more truly educational, as providing a better mental discipline, and as encouraging a more independent outlook than the oral method. But this is hardly the place to consider the relative merits of the heuristic (individual or experimental) and the pedagogic (oral or class teaching) methods. It is enough to state that the complete application of the former method is generally ruled out by practical considerations, such as the absence in many schools of an adequately equipped geographical laboratory and the necessity of covering an extensive course in a limited time.

1·5. On the other hand, the Geography course, particularly at the Preliminary Stage, offers frequent occasions where the use of heuristic methods is not only possible but highly desirable. In the early stages of the teaching of map reading, for example, the pupil's own observation and experiment are essential to a complete understanding of the subject.

1·6. On the whole, therefore, if Geography may be said to have a method of its own, such a method will be based on a combination of the oral, the experimental, and the observational, each of these elements coming into prominence when it is found to be appropriate to the stage of the course or of the lesson.

1·7. We may assume that the teacher will have laid down a general scheme for the whole course. But, in addition, he should prepare a detailed scheme for each term and should determine with some precision what he is going to do in each "lesson" and in each period. For the exigencies of the school time-table require that the Geography course, in common with other courses, be compressed into a number of isolated periods of, say, 40 or 45 minutes each, separated by an interval of one or two or, possibly, three days: and in any case it is a practical necessity to divide the syllabus into portions, each of which can be treated as a self-contained unit, without losing sight of its relationship to other similar units and to the complete course.

1·8. In few subjects, however, is it possible to confine the work of such a "lesson unit," as it may be called, within the bounds of a single teaching period; in Geography, perhaps, with its manifold study of interdependent phenomena, least of all. The number of periods over which the lesson unit may extend will vary with the length of period and the number of periods per week allotted to Geography, with the number and extent of homework periods, and, of course, with the subject-matter of the lesson itself. The study of a continent, country, or "region" lends itself particularly well to systematic treatment, but even in this case the number of periods required is variable, depending upon such considerations as the stage in the course at which the study is taken and the nature of the region studied.

1·9. But the study of particular regions, each in some degree complete in itself though forming part of a connected whole, by no means covers all the ground of the Geography course. The Preliminary Stage, for example, with its abundance of practical and observational work, particularly in map reading, presents problems of method very different from those of the World Stage; and lessons on the fundamental principles of Physical Geography, e.g. on land forms or climate, which must be interpolated in the World course, again involve to a considerable extent a technique of their own.

1·10. With such a wide choice of matter, method, and order of treatment before him the teacher of Geography will have to make many decisions in the planning out of his course, not a few of which must be tentative; for, until he has acquired a rich store of experience, much of his planning must be experimental, a mere "feeling of the way." It is indeed improbable that his methods and syllabus will remain unchanged throughout his career; nor is it necessarily desirable that they should do so.

1·11. In drawing up a working syllabus for a five years' course, perhaps even for a seven years' course, the teacher, after making due allowance for school examinations and occasional holidays, with a margin for "lost" periods, will only too frequently find that the time at his disposal is all too short for the ground he wishes to cover. His lack of progress, too, may be a frequent source of disappointment and the necessity for a strict economy of time will be forced upon him. He may even have to decide against demanding from all his pupils a perfect mastery of their work at each step of the course, in the hope, happily often realised, that much of what has apparently been left unheeded by the way will rise into conscious knowledge when it is required at a later stage.

1·12. Again, the teacher must prepare every detail of his lessons. Failing this he may easily become diffuse and rambling, he may be tempted to follow side issues, and at the end of the period he may find that he has very little to show for his time and effort. He must be clear, precise, definite; he must be a stickler for accuracy—it is so easy in Geography to be content with approximations—and withal he must be interesting or he will fail to secure the co-operation of his pupils, without which effective work will be impossible.

1·13. In the following paragraphs an attempt is made to systematise the methods of Geography teaching actually used in schools and advocated by this Committee. At the same time no suggestion is implied, nor would the idea be entertained by the Committee for a moment, that it is possible to lay down hard-and-fast lines for all teachers to follow. Every teacher has his own particular problems, and the purpose of this chapter will have been served if he is induced thereby to take stock of his own methods.

1·14. Since the World Stage occupies the larger part of the Geography course, methods used at this stage are dealt with first, special methods more appropriate to other parts of the syllabus being considered later.

1·15. The *preparatory stage* of the Geography lesson, in which connection is established between new ideas and old, and by which the conception of a "World Geography" is preserved, and the succeeding stage which concentrates on the *presentation of new facts* are, as a rule, so closely bound up with one another that it is neither practicable nor profitable to attempt to distinguish between the methods by which they are carried out. We shall therefore consider these two stages together and discuss the methods applicable to them under appropriate headings, on the understanding that the order of the headings must not be taken to imply either that one method is more important than another or that the sequence here followed must necessarily be followed in teaching.

Methods of Geography Teaching in Regional Study :

Preparation and Presentation of Facts

Individual Preparatory Work

2·1·1. The number of geographical exercise books that have appeared in recent years is sufficient indication of the growing realisation of the importance of what might be called the method of *individual exercises*. In this method the pupil is encouraged by "leading questions" to follow, with the help of his atlas or other source, lines of investigation and comparison which bring him to a knowledge of some of the broad facts concerning the region he is studying. Thus he may find out for himself the mathematical position of the region, regions occupying corresponding positions in other continents, the boundaries of the region and its neighbours, its extent in comparison with, say, Great Britain, the distribution of the chief land forms—leading, perhaps, to a general description of the relief, which is an excellent exercise for his powers of expression—and other facts of a similar nature.

2·1·2. The amount of individual work possible will depend, for one thing, upon the type of atlas or hand map available, particularly in the case of climatic factors: but in middle forms, at least, the following information should be obtainable by the pupils:—"Key" temperatures for January and July, with correction for altitude, the distribution of precipitation in time and space and the relation of such distribution to relief and aspect, the direction of prevailing winds, etc. In addition to the map-work, pupils may construct temperature and rainfall graphs from figures supplied to them (but see next section).

2·1·3. As regards human geography, a map showing the distribution of population is a fruitful source of exercises of this kind. Questions may be set involving the correlation of such a map with those showing relief, climate, and vegetation, and also more suggestive and less straightforward questions for the abler pupils, e.g. to account for the "ribbon" distribution of population in newly developed countries such as Siberia or Rhodesia. For this purpose more maps showing density of population should be available in the ordinary school atlas than is the case at present.

2·1·4. Comparison of maps with one another is most easily effected by a set of transparencies, one or two maps, including the density of population map, printed in colours, forming the foundation, and the remainder, e.g. those of climate and vegetation, printed in outline on transparent paper. Valuable work can be done by the use of such a system. Pictures, the use of which is always important in Geography teaching, may also be used to form the bases of interesting exercises, e.g. in the comparison of a new region with one previously studied.

2·1·5. It is by no means suggested that all the ground outlined above should be covered by the pupils' individual work: few teachers would have time for that. But a selection of such exercises, worked, perhaps, on the "team" principle described below, tends to concentrate the pupil's attention, to give him confidence in his own powers, and to arouse in him a personal interest in some of the broad facts concerning a new region.

Team Work

2·2·1. As has been suggested above, it is hardly possible for a complete set of such introductory exercises as has been described in the preceding section to be worked through by each pupil. Much valuable time is saved if the "team" method is adopted. A certain zest is thereby added to the work, especially if the results are periodically exhibited, each team being allotted wall space to itself.

2·2·2. For this purpose the class is divided into sections or teams (e.g. in a class of 30, arranged in 5 rows of 6, a row may well form a team) and the work is divided up among the teams. Each team should contain a fair proportion of better and weaker pupils, so that, on the one hand, the weaklings will be encouraged to put forward their best efforts and, on the other hand, there will be a sufficient number of reliable results to give a useful average. If the teams are doing similar work, e.g. on climatic data, each team dealing with the figures for a particular station, there may be keen competition between the teams to produce a good result, whilst at the same time the spirit of co-operation is encouraged, for the teams are each contributing some result to the study as a whole. Numerical work lends itself particularly well to this method, as, for example, in a comparative study of the relations of the areas of the continents to their coastlines. Practical work, too, such as the construction of models, may well be done by teams of pupils.

2·2·3. At a later stage (in the study, for instance, of a political unit) each team may "adopt" a sub-region, studying it intensively and then through its captain-spokesman presenting its results, corrected by the teacher, to the class as a whole. In such an arrangement each of the usual sections of the work (relief, climate, etc.), may be entrusted to a separate member of the team, so that not only is the work of the teams complementary one to another but that of the individuals in a team also.

2·2·4. There are obvious limitations to this method, but opportunity for its use frequently arises, and it then affords an interesting variation from the ordinary class routine.

Outline Maps

2·3·1. The use of outline maps, with or without contours, is also a valuable aid at the preparatory stage. The insertion of contours in a blank map; layer colouring and the insertion of rivers in a contoured map; the insertion of climatic data either in the form of isopleths or in the form of small graphs of temperature-cum-rainfall, reduced from larger ones previously prepared, and sketched in their appropriate positions; the shading in of climate and vegetation regions; these are but a few examples of what may be done with outline maps. "Picture" maps showing, for example, the primitive occupations of man in various regions may also be prepared, if time permits, appropriate pictures being drawn or cut out by the pupils and pinned on to a large base map divided into climatic regions.

2·3·2. Much of this work comes under the heading of "Formulation," but it is difficult and, indeed, unnecessary to separate the elements of method in individual work. Differences in the psychological make-up of pupils lead to differences in the stimulus received even from the same exercise.

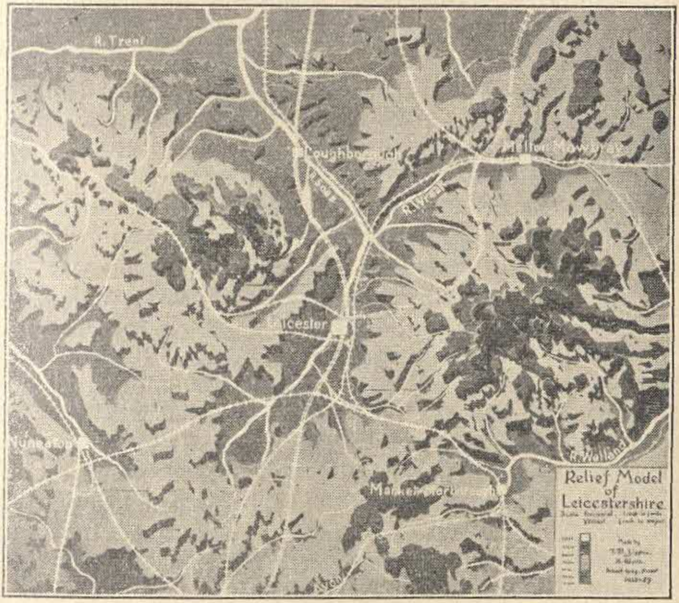

FIG. 6 – RELIEF MODEL OF LEICESTERSHIRE MADE BY BOYS OF THE SCHOOL GEOGRAPHICAL SOCIETY, CITY BOYS' SCHOOL, LEICESTER

Scales used are : Horizontal, 1in. to 1 mile ; Vertical, $\frac{1}{4}$in. to 100ft.

Oral Teaching

2·4·1. There is no doubt, if we may judge from the replies received from our correspondents, that oral or class teaching plays an essential part in the Geography lesson, and the reasons for this are sufficiently obvious.

Constant guidance on the part of the teacher is necessary to keep the pupils from wasting time over unimportant and perhaps irrelevant details, or from making false deductions or hasty generalisations, to lead them to a proper train of thought and to give them confidence in their deductions. Further, the time factor must needs be kept in mind: individual methods are undoubtedly slow. It is generally regarded as difficult, if not impossible to cover an adequate Geography syllabus by individual methods alone. The use of pictures, wall maps and other apparatus requiring the teacher's demonstration is a necessary part of most Geography lessons. Again, oral teaching gives scope for emotional response, e.g. in awakening the aesthetic appreciation of scenery and evoking a sympathetic feeling towards people in other environments.

2·4·2. Oral work allows the teacher much scope in its application. A mere exposition of the textbook, a method not infrequently followed in earlier days, is now discredited as a general practice, though, if the book be a good one and suited to the age of the pupil, there is no objection to its occasional use. The teacher, however, who allows the textbook to dominate his lessons thereby confesses his own inadequacy, while he allows no scope for the exercise of the pupils' imagination and initiative. Nevertheless the textbook has an important function to perform, as will be seen later (§§ 2·5).

2·4·3. The competent teacher, though he may follow the general plan of the textbook, will prefer to present his material from his own standpoint, and the oral or "lecture" method gives him an opportunity of doing this. It will be a useful exercise for the pupil to compare the "lecture" with the textbook and to construct from both his own account of the subject dealt with. The "lecture" method is, perhaps, especially suitable for giving a broad introductory survey of a large area that is to be treated in detail in subsequent lessons, or for introducing new ideas, or in the work of revision.

2·4·4. To get the best out of the "lecture" one or two conditions should be observed. The pupils should never be required to sit passively listening, at any rate for more than a few minutes; many of them will do so only perfunctorily and intermittently, while even those who do listen throughout will remember little of what they have heard. By frequent questioning and appeal for suggestions from the class, by reference to atlas and wall map, by the dictation of notes,[1] or by affording frequent intervals for the pupils to summarise what has been said, the interest and attention of the class should be kept alive. Even so, except in upper forms, where it may occupy a whole period, the "lecture" should not last more than fifteen or twenty minutes at the outside, the remainder of the period being left free for individual work.

2·4·5. A survey of the replies to the Committee's questionnaires shows that the "lecture" method is practised not so much on educational grounds as because it is found to be the speediest method of covering an extensive syllabus in a limited time, and that few teachers make exclusive, or almost exclusive use of it. In any case, the method is resorted to as little as possible in junior forms, whilst in middle forms it is found increasingly useful and in upper forms its importance is considerable.

The Textbook: its Necessity and Use

2·5·1. Most teachers find it neither possible nor desirable to cover an adequate syllabus in Geography by class teaching alone. Some part of the work must be left to the pupils themselves, for whom the textbook is a reference book and the basis of individual assignments, whether for learning, in school or at home, or for revision. Careful planning of textbook reading is, however, necessary on the part of the teacher. An objective is desirable, for undirected reading is generally pursued with insufficient concentration and to no good effect. To fulfil its purpose a good textbook will provide pupils with adequate maps, statistics, pictures, first-hand accounts and other raw material for them to work upon. It is true that individual teachers prefer their own method, arrangement and stress. Nevertheless, few teachers will fail to find in a good modern textbook much useful material which they can weave into their own course and make available for their own purposes.

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[1] For Notes and Notebooks see §§ 4.4.

2·5·2. A comparatively recent development in the form of textbooks, designed especially for Secondary Modern Schools, is that in which generalised descriptions are replaced by typical studies based on particular examples, e.g. of a coffee hacienda, a sheep station, a ranch, and so on. A recently published series[1] thus brings English textbooks into line with the microgeographical studies of the Americans, R. S. Platt[2] and R. B. Hall,[3] and others,[4] model presentations of small regions in a world pattern, with all the wealth of detail which appeals to boys and girls.

2·5·3. Again, in his insistence that the book must be fitted to the course and not the course to the book, the teacher may build up home-made textbooks with his pupils; and this affords an excellent opportunity not only for individual but also for team work. The pupils bring relevant contributions in the form of letterpress or illustrations which they have gleaned from their own reading, from books, magazines or newspapers, and these are put together in class or by the teacher directly. In no section of the course would this seem more desirable than in Local Geography, in which case admirable models may easily be found.[1] The Dalton plan lends itself well to work of this kind.

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[1] Fairgrieve and Young: *Real Geography:* Geo. Philip, 1950.

[2] Annals of Association of American Geographers: 1938, *Items on the Regional Geography of Panama;* 1939, *Reconnaissance in British Guiana;* both by R. S. Platt.

[3] *Geographical Review:* 1937. *Tokaido: Road and Region* by R. B. Hall.

[4] e.g. J. F. Embree, *A Japanese Village*, Kegan Paul, London, 1946.

2·5·4. In the lowest forms, perhaps, it is possible, and even advisable, to dispense with a textbook. The portion of the course to be covered is smaller, the pupils have not reached an age, it may be argued, when a textbook can be intelligently used, and the necessity for direction by the teacher is greater. But as we move up the school the teacher's task grows in complexity, and, if he is unable to fall back on a textbook to supplement his own lessons, he will certainly leave a good many important topics untouched, or, at least, inadequately dealt with. Class teaching and textbook supplement and reinforce each other. But the textbook must always be subservient to the teacher and the oral lesson, an aid to teaching, and not a substitute for it.

2·5·5. It will be seen from the above remarks that the textbook will be used mainly as an adjunct to the ordinary class lesson, and especially as a basis for homework. Its use in this latter connection will be found under the appropriate heading. But it is sometimes found useful in class teaching, and to encourage a pupil to make proper use of his textbook a series of exercises may be set which can be answered by reference to the textbook alone. We may repeat that the satisfactory relation of the textbook to his class lessons forms one of the teacher's most difficult problems. He has to steer between the Scylla of too slavish adherence to the book and the Charybdis of such complete disregard of it that it becomes practically valueless. We may also note here that many of our correspondents have expressed their sense of the value of the textbook for revision purposes, and we may add that this should be undertaken in conjunction with the pupil's notebook, which should serve as a guide to those portions that are of special importance, and so obviate aimless and undigested reading that is of little value.

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[1] Such as in *English County* by West Midland Group, Faber, 1946. Also in the *Manchester Guardian Picture Geography of Lancashire* and in similar publications of Messrs. Fry and Messrs. Cadbury.

Sources

2·6·1. Geography is a subject, fortunately, that touches daily life at many points. Its raw material lies all around us, in the fields, hills, and streams of the countryside; in the shops, warehouses, and factories of the city; in the vessels that throng our ports; on the highways and railways that intersect the country. All these are in their way sources of Geography, and if properly approached can be made to yield their secrets. Among printed sources are the daily and periodical press, claiming more attention to-day than ever, with the increasing pressure of public affairs and the recognition of the part that Geography can play in training citizens capable of thinking intelligently about them. Other sources are found in trade journals, railway and steamship guides, the advertisements and propaganda which plaster the hoardings (from which, incidentally, we may learn lessons in visual presentation), letters from correspondents abroad, almanacks and other general works of reference, magazines and many books whose purpose is not primarily geographical. There is, in fact, within the reach of every student a vast store of crude geographical information, quite outside the finished product to be found in the Geography textbook or in professedly geographical literature. How far can these stores of information be drawn on and what purpose may they be made to serve?

2·6·2. It may be said at once that anything that relates the study of Geography to ordinary life is worth consideration, since it gives a certain reality to the subject and so stimulates interest and the spirit of discovery. No matter what region of the world is being studied, it is within the power of every pupil to contribute something of his own from some of the sources that have been mentioned, and, in so doing, he cannot fail to take a more personal interest in the subject than class teaching or the textbook alone can give.

2·6·3. The more orthodox sources will not be neglected —books of travel, for instance, and monographs on various countries or on various aspects of the subject such as the pupil will find in his own school library or in the public libraries of his neighbourhood. He will of course need guidance in his researches, and will have to be taught how to reduce the crude information that he gathers to some orderly system, in fact how to make Geography out of a hotch-potch of unrelated facts. This is in itself excellent mental training.

2·6·4. In the lower forms the main object will be to stimulate interest, though, in the process, some information that would otherwise be missed will be gathered. Groups of two or three pupils, for example, may be set to read a daily paper and to collect any articles or news that bear on their subject, or to trace the route of a vessel from *The Times* sailing lists. Coming as they do from homes with a great variety of interests, some of them will certainly have access to trade papers and these will furnish further material: in fact there is a wide field open for pupils at this stage. Cuttings may either be transferred to the collector's notebook or put into a common stock that will be available for all the pupils in the class.

2·6·5. In the middle forms the same process may be continued, but the range will be wider. Such works as *Whitaker's Almanack* may be consulted as well as books of travel, and, occasionally, under proper guidance, geographical monographs may be used. Of course it is easy for pupils to spend too much time in this way, and unless their activities are strictly regulated they will be largely dissipated and will bear no fruitful results. It is a good plan to propose questions that cannot be answered from the ordinary textbook and to direct the pupils to the sources from which the necessary information can be obtained. They should be encouraged to work up the results of their research into a presentable form. Occasionally a roving commission may be given. The larger daily newspapers such as *The Times*, *Daily Telegraph* and the *Manchester Guardian* often contain special articles of geographical interest which are well worth careful study; and *The Times Monthly Review of Industry* is useful. Besides these there are the works of reference such as *Whitaker's Almanack* (already mentioned), *The Statesman's Year Book*, and the official Year Books of the Dominions and of foreign countries. The geographical magazines, especially the American magazines, will also provide much material, but some of these are rather beyond the scope of the middle school. Books from the general school library or from the geographical library, if the school is fortunate enough to possess one, may also be consulted. Books of travel, especially, appeal to boys of all ages, and, if they do nothing else, they help them to realise that Geography includes something more than what they hear in the classroom.

2·6·6. To sum up: the objects aimed at in the use of sources are the stimulation of interest in the subject, the realisation of the fact that Geography is not an affair merely of the classroom and the textbook, its removal from the category of merely "academic" subjects, and some elementary training in the methods of independent research and in the adaptation of the information gathered to the particular piece of work in hand. To achieve these results will require much forethought and careful guidance on the part of the teacher and some sacrifice of the time given to ordinary class lessons. Each teacher must decide for himself how far the results to be attained are worth the trouble and sacrifice that will be entailed.

Visual Methods

3·1. Outside the field of direct observation the Geography teacher has to resort to symbolic representations of reality in order to enliven the imagination of his pupils. Three broad categories of symbols may be recognised, the verbal symbols of oral teaching, and the map and the picture symbols of visual education. As a visual image the picture, whether moving or still, is nearest to reality, and a series of pictures, or even one landscape, may epitomise the Geography of a region. Wall maps, globes, atlas maps, large-scale maps, diagrams and wall charts are more abstract, but constitute the geographer's characteristic mode of expression. "As a teacher, he would make maps speak."[1]

The Wall Map

3·2·1. One of the most important aids to oral teaching is the wall map, although there is some division of opinion among the Committee's correspondents as to its use. Wall maps are generally recommended, however, and are found to be particularly useful in revision work and in comparative studies, when, for instance, they enable the teacher, by the display side by side of a series illustrating such factors as relief, climatic, and vegetation features, to bring out essential correlations. To take an example, the simultaneous display of maps of India showing relief, summer rainfall, and winter rainfall provides the teacher with a more effective method of illustrating the climate of India than he could obtain as easily by other means. Such instances could, of course, be readily multiplied. During the oral part of a lesson, too, the pupil's attention will be less distracted, and less time will be wasted if he can see on a wall-map any geographical features or place-names mentioned by the teacher than if continual reference has to be made to the atlas. Further, on the wall-map, with its large scale, the distribution of rainfall, vegetation, population, etc., is strikingly shown. The colouring alone, when the figures cannot be read, is often sufficient to show the main facts. A single glance at a population map of Asia, for example, cannot fail to impress the pupil with the remarkable contrast between the S.E. of the continent, with its enormous concentration of population, and the vast, almost uninhabited, spaces of the remainder. It is a good thing to leave a wall map or a series of wall maps on view for several days, so that whenever pupils enter the classroom they will see them and thus, subconsciously perhaps, absorb a good deal of the information the maps contain.

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[1] Mackinder, *Geographical Journal*, 1895, p. 376.

3·2·2. Some teachers see no advantage in the wall map as compared with the atlas and blackboard. The main objections put forward are that the maps contain too much detail, that the details cannot be read from the back of the room, or that they emphasise unduly certain features, such as county boundaries. Such objections clearly refer to types of wall map in use and not to the method, but they do invite consideration of the grading of wall maps to meet the needs of lower forms and slower streams.

3·2·3. A point that remains to be mentioned is the question of the relative value of maps with names and those without. Except for purposes of testing there seems to be no reason for preferring the latter, and, if two sets cannot be obtained, maps with names should certainly be chosen.

The Globe

3·3·1. The earth being a three-dimensional body, any representation of it, or of any large part of it, on a flat surface must necessarily be imperfect and is likely to lead to a number of misconceptions on the part of the pupil. Such misconceptions are best corrected or avoided by the use of a globe, which should be regarded as a necessary piece of apparatus in any classroom in which

Geography is taught. The globe has assumed a new significance under the conditions of rapid transport in an air age, and its use to-day is essential to a proper understanding of the modern world. Small "individual" globes of, say, 4-in. diameter are sometimes used in regional work, so that pupils may realise the true shape and position of the region they are dealing with.

3·3·2. The help of the globe is essential in introducing the pupil to those portions of the Geographical Vocabulary which are concerned with the earth as a whole and its movements in space. The hazy notions which exist in the minds of so many pupils concerning latitude and longitude, concerning the phenomena dependent on the earth's rotation and revolution, particularly seasonal changes and the varying length of day and night, and concerning the principles on which the fixing of the Polar circles and of the Tropics depends, may all be attributed largely to an inadequate use of the globe at the appropriate stage of the course. Many pupils, indeed, reach their final year with anything but clear ideas on many, if not all, of these points. It is not suggested that the whole of this work can be made clear to the lower forms, but by the time a pupil enters upon the final year of the ordinary course he should have an intelligent comprehension of all these principles.

3·3·3. It is clear that, while diagrams drawn on a flat surface may be useful, for example, in applying the elementary principles of Geometry to Mathematical Geography, they are quite inadequate to demonstrate the fundamental phenomena, which can be shown easily and effectively by means of a globe with a suitable arrangement of lighting. The question of the choice of a globe will be dealt with under the heading of Equipment; but it may be pointed out here that for the purpose of illustrating the facts of Mathematical Geography a globe which can be easily moved about is clearly necessary. The use of a movable and detachable hemispherical shell of some transparent material, such as is described in

Chapter V, is valuable for finding great circle routes and in other ways, especially if it has a meridian line and a scale marked on it.

3·3·4. Special apparatus is obtainable for illustrating the motions of the earth and their consequences, but the cost is prohibitive in the case of most Secondary Schools and the demonstration can be quite as effective if carried out by means of an ordinary globe.

3·3·5. In the introduction to World Geography the globe will occupy an important place. The true forms of the continents and of the major regions of the world, the routes by which commodities are brought to this country, air routes, the tracks of the great discoverers and their problems, can all be shown more clearly and accurately on a globe than on a flat map. It is, perhaps, here that the ideas of latitude and longitude are best introduced, and it may be possible to deal in an elementary way with some of the phenomena concerned with the world in space referred to in preceding paragraphs.

The Atlas

3·4·1. It is hardly necessary to stress the importance of the atlas. Its use in introductory exercises is clearly essential, but it is equally necessary in oral teaching: it is, indeed, an indispensable part of the pupil's equipment. The use of the atlas gives precision and definiteness to the pupil's knowledge, it enables him to appreciate space and direction, and to recognise the fact that the approach to geographical knowledge is largely an affair of the eye as well as of the understanding. The pupil is too often inclined to neglect the atlas, but the teacher may rest assured that unless the attention of his pupils is constantly called to it, unless they are made as a matter of routine to identify in it every name mentioned in the textbook or by himself, they will never acquire a sound knowledge of Geography. Whether in the classroom or at home its use is equally important. The pupil, indeed, who acquires the atlas habit, so that he can read a map with intelligence and understanding, is a long way on the road to becoming a geographer.

3·4·2. But precision in its use must be strongly insisted on. For instance, pupils should notice such points as the particular bank of a stream on which a town is situated, whether a port is at the mouth of a river or upstream, points often neglected, but which may have important implications. Pupils, too, are apt to neglect the scale on which a map is drawn, and so gain little idea of distance; parallels and meridians are often insufficiently noticed, with resultant vagueness in the pupil's knowledge.

3·4·3. The use of the atlas in the study of such fundamentals as position, relief, and climate has already been dealt with under "Individual Preparatory Work" (§ 2·1·1). It is one of the advantages of introductory exercises that they encourage the pupil to use his atlas as a matter of course, although here, particularly, constant guidance on the part of the teacher is necessary to ensure that the map-reading is correct and precise.

3·4·4. A discussion of the requisites of a good atlas will be found under "Equipment" in the next chapter.

Pictorial Illustration

3·5·1. It has already been pointed out that Geography is a subject in which the appeal is largely to the eye in a sense, or at least to a degree, in which it is not so directed in such subjects as History or Languages. The old definition of Geography as "a description of the earth's surface" is still not altogether superseded, but it would be difficult by mere verbal description to convey to the pupil who had never seen them the idea of a river or of a mountain or of a lake. The proper method of studying any region is to go out and look at it, to travel over it, to note on the spot its various natural features as well as those added by man's hand. This is the ideal; but, except on the very smallest scale, it is, of course, impossible for most of us. One glance at a picture, however, may convey a more accurate conception of a landscape, or of human activities in distant parts of the world, than can half an hour's description. It cannot give the "why" and "wherefore" of what is seen, but it can show the pupils what is there and so enable them more readily to comprehend any explanations that may be offered than if they had never seen the picture.

3·5·2. Whereas the oral lesson tends to consist of generalisations, the examination of pictures gives definiteness to class work. Their appeal is immediate and direct. By means of pictures the minds of pupils are enabled to bridge the gap between their own limited experiences and the lives of peoples they may never see. Pictures do not serve merely to awaken interest and to aid the memory, but are used also to encourage discrimination and critical observation and to exercise the pupil's reasoning powers. In regional work pictures provide the *data* of a lesson. A particular function of pictures is to illustrate the essentials of a region about to be studied, to give it a specific "atmosphere" before its more formal analysis. From these and other considerations it may be concluded that the use of pictorial illustration is essential to the efficient teaching of Geography in Secondary Schools.

3·5·3. Broadly speaking, pictures are of two kinds: *still*, including the teacher's sketch, the printed copy, photograph, slide, and film-strip, used for descriptive and critical analysis; and the *motion picture* or *cinema film*, used where movement and synthesis are desired. The latter type is considered below under "The Use of Films."

3·5·4. Whilst a picture is being shown to a class attention should be drawn to such details as the length of a shadow to indicate the time of day or the season, the kind and condition of the foliage, the kind of animal life, and the physiographical environment. Pictures should be used sometimes as a basis for exercises in reasoning, although too much should not be attempted in connection with any one illustration. In his book, *Man's Adaptation of Nature*, Dr. P. W. Bryan has shown how visual impressions of the cultural landscape may be used to set in motion trains of thought regarding man's relations with his environment. A building with a human figure and a roadway can be made to suggest the stage of industrial and commercial development of the surrounding region. The material of a building may suggest the presence of local quarries or, where thatch is used for roofing, of local cornfields. Thus in a picture there may be many details which shed light on the social and cultural development of the region it illustrates; and this suggestion of what lies behind the picture itself is not the least valuable of its qualities for teaching purposes.

3·5·5. Most modern textbooks are illustrated. In fact in some of the best American geographies,[1] pictures have ceased to be mere illustrations, but rank with the printed word as data. Pictures may even lack titles and become intelligible only on reading the adjacent text. In addition to illustrations in textbooks, a number of excellent series of pictures, some of a size suitable for display with the episcope, others large enough to be used as wall charts have been produced. But even if, on account of expense or scarcity, such pictures are not available, much can still be done. Picture postcards, illustrations from newspapers, advertisements, magazines, trade papers, etc., will all provide useful material which, if carefully selected, may prove as valuable as any published series of pictures. If pupils are encouraged to contribute to the collection, interest. will be stimulated and a larger variety will be available.

3·5·6. Much use can be made of pictures apart from the formal lesson. Some teachers compile a scrap-book, in which series of pictures are arranged under suitable headings, and which is available for lending to any pupil who desires to inspect it. The pupils will readily fall in with the suggestion that they should make their own Geography picture books, and indeed may, unless restrained, devote more time than they can well spare to this fascinating pursuit. It is useful to display on the walls of the classroom a set of pictures illustrating the work that is being done : or loose pictures may be handed round the class in the few minutes that are sometimes available at the end of a lesson.

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[1] The Barrows-Parker series, for instance.

3·5·7. It may be noted that the pupil will get much more out of a picture if it contains some feature of human interest. It is desirable, especially in the case of young pupils, that the picture should contain an animal or a human figure. A mere landscape with no living thing visible makes far less appeal to the attention than the same scene enlivened by some representation of life.

Aerial Photographs

3·5·8. Aerial photographs have become very popular in recent years among Geography teachers, but it is to be feared that the technique involved in their correct use has not always been fully mastered. It has, indeed, been suggested that a systematic course in the use of aerial photographs should be included in University Geography syllabuses.[1]

3·5·9. Photographs of ground features taken from the air are of two main types, oblique and vertical. In oblique photographs the scale is varied and not all the ground in the area is visible, but in this case the photographs are easily understood by the pupils and may be used in very much the same way as any other photographic illustration. In the use of the second type more thought and care are required for there is much in vertical photographs which can be puzzling to the pupil and may not always be recognizable even to the teacher. Mistakes in recognizing features from the air were made in strange country even by air-observers in the war, through a predilection for finding gun-sites. Children unfamiliar with the rural countryside may find it by no means easy to identify such features as ponds or haystacks in a field.

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[1] See the article by Rawson and Beaver in *Geography*, September, 1947.

3·5·10. The chief use of vertical photographs is in map study, where the photograph may be compared directly with a large-scale map, which, indeed, as in the case of the Ordnance Survey series of photographic "maps," may be on the same scale. It may be argued that the photograph shows no more than the map itself, but it should be more convincing to the pupil. An urban child should, of course, be introduced to such photographs by the study of those of an urban area, and *vice versa* for a rural child. The photograph will be used, in the first instance, to help the pupil in his map-reading, to answer, for example, a question on the lay-out of a farm, or, in an urban area, to find the positions of public buildings; but it would clearly be inadvisable to spend much time on teaching the technique of the reading of such photographs to the ordinary school pupil. Later on, however, when the pupil is better able to interpret them, the photographs may be used as a basis for topographical study, especially in Local Geography, where the ground features are familiar to him.

The Use of Optical Aids

3·6·1. For the display of small pictures to the whole class during a lesson, some method of projecting them on to a screen is necessary. Two main types of projectors may be used, those which project "still" pictures and those which project "moving" ones. The former may be divided into three classes ; diascopes, episcopes and epidiascopes. In the *diascope* the light is transmitted through the picture, which is printed on a transparent glass slide or film. Under this heading fall the old fashioned but efficient *optical* *lantern* and the much more handy *film-strip projector*. In the *episcope* the light is thrown on to an opaque picture or other object and then reflected by means of mirrors through the projection lens. There is thus a considerable loss of light as compared with the diascope, but, on the other hand, no special preparation of material is necessary. The *epidiascope* is a combination of the episcope and the optical lantern, enabling use to be made of transparencies and opaque material in the same lesson. As the change over is, as a rule, simple and almost instantaneous, constant reference may be made, for instance, to a map drawn on a lantern slide. For moving pictures a *cine projector* is used, which may be either silent or equipped to reproduce sound as well. Detailed descriptions of all these projectors will be found in the next chapter.

3·6·2. For still pictures lantern slides are open to the objection that the choice is more limited and the expense greater than in the case of pictures shown through the episcope. The filing of lantern slides, too, presents a much more difficult problem than that of pictures for the episcope. The great advantage of the episcope is the wide range of material that can be used. Besides pictures from a great variety of sources, such as those mentioned in § 3·5·5 above, pupils' own work, teachers' diagrams, Ordnance and atlas maps, and even solid specimens, where sharp definition is not required, can be shown by this means. Lesson summaries, such as the blackboard summary, referred to later, may be preserved on postcards for showing in this way, in revision, for instance. Coloured pictures or slides are to be preferred to those in monochrome since they give a more realistic presentation of the features portrayed. The disadvantage of the episcope with its reflected picture is the relative dimness of the image. This can be overcome by using a very efficient machine in an effectively darkened room with a silvered or beaded screen, or by using back-projection in a nearly darkened room (see section on screens in Chapter V).

3·6·3. The film-strip projector is a valuable aid, especially in lessons on Local Geography, where the teacher's or pupils' own photographs can be used[1]; but it is open to the objection that the pictures must be shown in a fixed order. Film-strips are now being published on a wide variety of subjects. The film-strip projector, or an efficient diascope with a good light output, can be used even in a poorly darkened room, especially if helped with a silvered or beaded screen, or in near-daylight with the help of back-projection.

3·6·4. The epidiascope is one of the most useful forms of apparatus in the Geography Room. At first it was regarded as a luxury, maintained largely for show purposes by a few richly endowed schools. More recent experience, however, has proved that, in the hands of a capable teacher, it can become an instrument of the greatest educational value; and it is now generally regarded as an indispensable part of the ordinary equipment of the Secondary School, especially where it is not possible to have an episcope and a diascope separately. Where a school already possesses an optical lantern, it may be noted that an episcope, which is much cheaper and handier than an epidiascope, is all that is necessary; although there are advantages in the use of the combined instrument, as will be noted later. With the best instruments it is possible to use the epidiascope equally well in the Geography Room and in a large hall at a distance of from 80 to 100 feet from the screen. Lectures to the whole school no longer require the use of expensive and frequently inappropriate slides.

3·6·5. The use of the epidiascope may well form a regular feature of class teaching. If, in the course of a series of lessons on any subject, fifteen or twenty minutes are spent in this way, the time will certainly not be wasted; but whole lessons may be centred in the projection of pictures, as is shown later. By this means interest will be stimulated and descriptions, perhaps imperfectly comprehended, will gain in vividness and reality and will remain longer in the pupil's memory. Visual work of this kind should also be done at the introductory stage, to prepare the pupil for what is coming, and then, perhaps, amplified later.

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[1] See Appendix VII.

3·6·6. Apart from its place in the ordinary lesson, one of the most valuable uses of the episcope is for the exhibition of the pupil's work, since the criticism of written work and maps then becomes a matter for the attention of the whole class. Every teacher knows the occasions when a number of pupils make the same mistake, but with the episcope such errors may be much more easily eliminated.

3·6·7. A detailed account of a lesson based on the use of the epidiascope will be found in §§ 5, after the description of the blackboard summary, with which it may be compared. The use of the cine-projector is also discussed at that stage. A list of sources from which pictures can be obtained is given in Appendix VI.

The Use of Samples and Specimens

3·7·1. Besides being shown pictorial illustrations, the pupil should have the opportunity of seeing and handling specimens of products such as those referred to in the description of the agricultural and mineral exploitation of a region. The idea of a cotton field, of a cacao tree, or of a copper mine can be conveyed to the pupil through pictures or films, but the impression is deepened, and the idea made more vivid and real, if actual specimens of a cotton boll, a cacao bean, or copper ore may be inspected at the same time.

3·7·2. The specimens required for a particular lesson may be set out in a special case and the pupils allowed to come out, either each in turn or in groups, and inspect them towards the end of the lesson, after the "lecture" is over: or the specimens may be handed round the class. Small specimens may also be shown through the episcope.

3·7·3. Apart from the normal class use of such specimens, occasional visits may be made to public museums. In this case previous preparation is necessary, and the teacher should be thoroughly familiar with the ground to be covered before the class visit is made. The use of preliminary notes, notes made in the presence of the objects examined, and of subsequent summaries, will depend upon the teacher's own judgment and experience.

3·7·4. Where a school possesses its own museum the class may, towards the end of the lesson, be taken to view the specimens connected with the lesson: or an occasional lesson may, perhaps, be given entirely in the museum. Access to the museum by individual pupils should be permitted outside class hours, for much can be gleaned by the more enquiring minds by free and unfettered inspection of the cases.[1]

3·7·5. Specimens of agricultural, mineral, and other products of the British Empire may be obtained by school authorities, at a small charge, from the Imperial Institute, South Kensington, and many teachers have found them most useful.

Models

3·8·1. The construction of models may be carried out, if time permits, at an early stage in the course. To illustrate human settlements, models made from scraps of materials of various kinds may be constructed of such subjects as an English farm, an Eskimo village, a Red Indian camp, a Masai "kraal," and so on. School children under Mr. H. M. Cleminson, chairman of the Council for Visual Education, have constructed a model of the village of Writtle on a gauze foundation about ten feet square, using rubber scrap for buildings and cloth overlays of various hues to sew on the fields in the changing seasons.

3·8·2. Simple dioramas and relief models may also be constructed, and the time expended is repaid, especially in the case of junior pupils, by the more vivid sense of reality given to subsequent study, apart from the general educational value of the team work involved. With practice a small relief model can be fairly easily prepared with thin cardboard and liquid glue. The main difficulty lies in the choice of scale and contours. In the case of atlas maps the selection of contours is often inconvenient and the scale is small. For a continent or large country, however, a good school atlas map may provide a suitable base if the contours are carefully chosen. Another plan is to take the base maps from a good general atlas such as *The Times* Atlas. The pupils may then trace the contours one at a time, the "team work" method being clearly applicable here. Sometimes models are prepared by pupils in their spare time or in "study hours."[1]

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[1] See also The Schools Museum Service, Chapter VIII, §§ 6·4·1 to 6·4·4.

3·8·3. There are, however, one or two drawbacks to the use of models, even apart from the expenditure of time involved in their construction, which deter many teachers from taking advantage of them. A serious objection is that in class they can occupy only a few pupils at a time. Relief models, again, give a distorted impression owing the the exaggeration of the vertical scale. Nevertheless they form an effective means of teaching pupils to read contours and of enabling them to visualise a piece of country from the contoured map.

3·8·4. The construction of models provides excellent training for hand and eye, although it may be argued that this is not the function of Geography teaching and is better done in the school workshop. Indeed one of our correspondents gets such models as he requires made by the carpentry class, which is a simple solution to the problem, but misses all the advantage to be gained from the correlation of the hand and eye work with the Geographical study concerned.

3·8·5. The use of models in the study of contours and their connection with Local Geography are referred to

[1] See the next chapter for details of the construction of models.

later, but there will be few schools where a complete series of land forms can be observed at first hand. A collection of models of such forms, however, taken, as far as possible, from local examples but including also such features as occur only in glaciated, arid, or mountainous regions, will be found most useful. They will be drawn upon as required in the study of the Homeland and in regional study where attention is being drawn to structure and topography.

Formulation

4·1·1. The results arrived at by introductory exercises, corrected, sifted and correlated by the teacher, or by other methods, must be welded into the regional concept and summarised in a form in which they can be readily memorised. This may be done in various ways examples of which are given in the following pages: but visual and graphic methods, in which full use is made of the blackboard, and pictures and diagrams are impressed on the pupils' minds by episcope or diascope projection, play a leading part.

4·1·2. In the graphic method the summary takes the form of a map built up, as the lesson develops, on the blackboard. This, together with the teacher's outline notes, will form an epitome of what has been learnt. The pupils will build up their own maps in their notebooks (which should be interleaved with plain paper for the purpose) and enter their notes at the end of the lesson or during pauses in the lesson which are interposed for the purpose. The co-operation of the pupils in all this kind of work is to be enlisted by frequent questions and by inviting suggestions both as to what should go on the map and what may be deduced from it. The teacher's outline should be in the form of brief sentences easily memorised, and should be mainly confined to leading facts, the pupils filling in the causes which have come to light during the lesson.

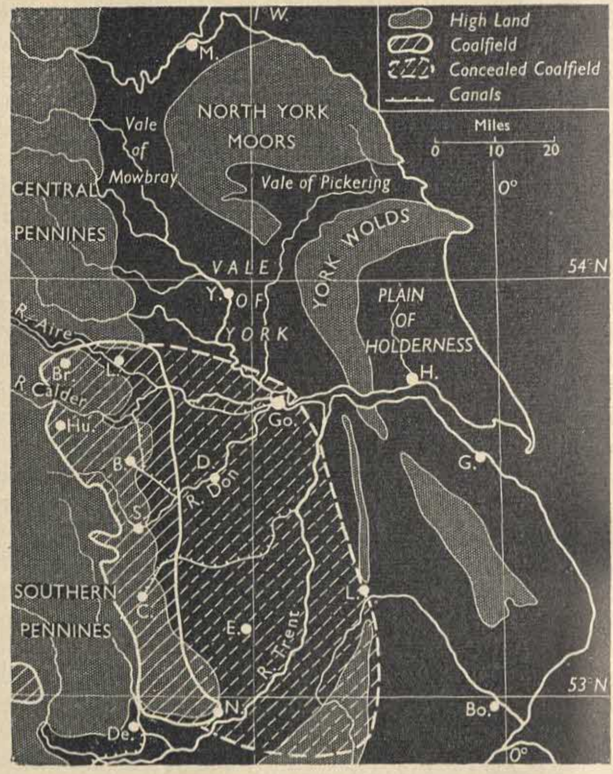

FIG. 7 – A BLACKBOARD SUMMARY OF A GEOGRAPHY LESSON
B., Barnsley; Bo., Boston; Br., Bradford; C., Chesterfield; D., Doncaster; De., Derby; E., Eakring; G., Grimsby; Go., Goole; H., Hull; Hu., Huddersfield; L., Leeds, Lincoln; M., Middlesbrough; N., Nottingham; S., Sheffield; Y., York.

The Use of the Blackboard

4·2·1. The "blackboard" method is illustrated in the following account of a three-period lesson on the Yorkshire, Derbyshire, and Nottinghamshire coalfields, with special attention to the Yorkshire area, given to a fourth or fifth-year form. If possible each lesson-period should be followed by a homework period for the writing up of class notes.

4·2·2. In the first period, to begin with, the physical features will be sketched in, the Yorkshire and Lincolnshire coasts being shown. For relief it will be sufficient to show the 600-ft. (or 500-ft.) contour, shading the area lying above this. Teachers occasionally find it helpful, in cases where geological control is important, to shade highland areas in varying colours; e.g., on this map some teachers would shade chalk hills in green and the oolitic hills in yellow: although other teachers prefer to use different methods of shading with the same colour. It is hardly necessary to point out that the relief can be shown only in rough outline, but it is important to bring out, both in the map and orally, the gaps through which communications to and from the area naturally pass. The drainage must, of course, be shown, if for no other reason than to give precision to the positions of the towns that will be inserted later. The contrast between the fertile agricultural plain of York and the barren moorlands should also be brought out and emphasised. The difficulty of communication westwards (Aire and Calder gaps) will be contrasted with the ease of communication north and south (Northallerton gap), and attention will be drawn to the way in which the routes eastwards naturally converge on the Humber estuary.

4·2·3. By this time the blackboard will show the main physical features. The outline of the coalfield may now be marked, with perhaps some differentiation between the older, western, and the newer, eastern, portions. It will be noticed that the coal has until recently been mined on the lower slopes of the moorlands, but the important development of mining under the lowlands farther east, extending beyond the Trent, will be emphasised. It may be noted that this recent extension of the South Yorkshire coalfield constitutes the most important development in the history of our mining industry during the present generation. A diagram may now be introduced showing the folded structure of the Pennines; it should preferably take the form of a block diagram rather than of a simple section (*see* illustration). This particular example is one of the simplest with which to introduce pupils to the use of block diagrams, which have the advantage of being more realistic than sections. The diagram will help to explain the absence of coal from the higher slopes. At the same time there will be brought out the economic uses of the millstone grit and the carboniferous limestone, for use in the blast furnaces, for building, and for the making of grindstones. The class will also note how the agricultural area is defined by the western boundary of the New Red Sandstone and Permian formations which overlie the coal measures. At this stage a vertical section, drawn roughly to scale, will illustrate the location of the coal seams—how they are found at intervals, one below the other, separated by bands of clay and other rocks. Some of the chief mining centres, selected from Barnsley, Doncaster, Chesterfield, Bolsover, Clay Cross, and Mansfield, may now be marked, and distinguished by underlining. A few statistics of production, export, etc., may be given, and the importance of this great coalfield made clear. The use of the coal for making coke (iron and steel industries), its position as one of the principal sources of coal for domestic purposes, and the relatively small export trade may be noticed.

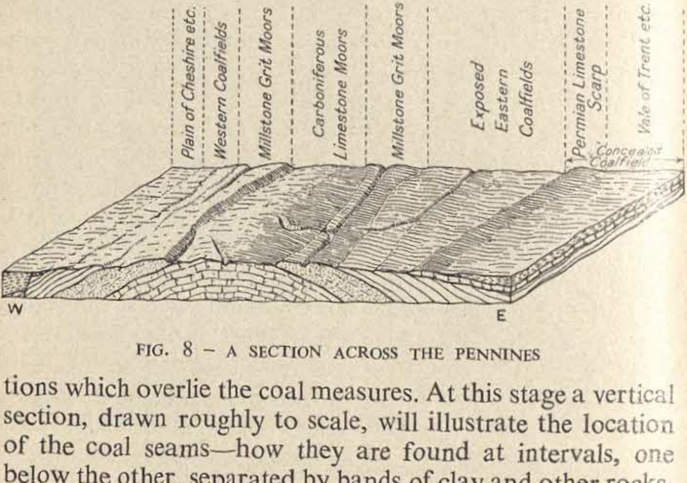

FIG. 8 – A SECTION ACROSS THE PENNINES

4·2·4. In the second period, and possibly the third, the industries of the coalfield will receive attention, especially the woollen and the iron and steel industries, with the developments of the latter. Reference will also be made to the oil producing industry and to Eakring as the chief centre of Britain's most important oil-producing locality.[1] The names of these industries will be written in the appropriate places on the map. Some facts, too, will be obtained concerning the circumstances that have led to their establishment and have since promoted their growth. Pupils often confuse origin with growth, and the distinction needs to be carefully pointed out. For example, the causes that led to the establishment of its characteristic industries at Sheffield are in certain fundamental respects different from those that have led to their expansion. It is important to localise the industries; in the case of wool textiles, for instance, pupils have a vague idea that they are made over the whole of the coalfield, not realising that their manufacture is practically confined to a comparatively small area in the basin of the Aire and of its tributaries the Calder and the Colne. With this concentration of the wool industry may be contrasted the wider extension of the iron and steel industry—from Leeds in the north to Chesterfield and Derby in the south, with its main centre in the Sheffield-Rotherham area. The names of the principal industrial towns will, of course, be inserted on the map, the wool textile towns being distinguished from the iron and steel towns, and Eakring representing the oil district. Some explanation of the sites of a few of the principal towns, such as Leeds and Sheffield, may also be found, on suggestions from the class, developed by the teacher.

4·2·5. The three industries mentioned above do not, of course, exhaust the industrial activities of the district, and time should be found for at least a bare mention of the others, such as the lace and hosiery of Nottingham, the glass of Castleford, etc. Note will also be taken of the way in which the various branches of the wool industry, for example, are distributed among the towns engaged, such as dyeing at Bradford, shoddy at Batley and Dewsbury, carpets at Halifax, textile and other chemicals at Huddersfield; although a warning should be given that such generalisations may conceal the great intermixture of industries within the area of the "wool textile towns."

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[1] The up-to-date information given in *Geography*, September, 1947, should enable teachers to devote another lesson, or part of a lesson, to the mode of occurrence of oil, using this British region as a good example.

4·2·6. Lastly, the communications (railways, and, in this age of road traffic, the roads, and the Pennine canals) may be shown. Only a few of the chief routes can be inserted, the main object being to show the trans-Pennine connections and the great N.-S. route. The lesson may close with some account of the trade of the district, and of the importance of the Humber and Mersey estuaries in this connection. The Humber ports will, of course, be shown on the map.

4·2·7. It may be asked whether it is possible to show clearly on one map all the features necessary to illustrate the above lesson. This will depend very largely on the teacher's skill as a draughtsman, but it is contended from actual experience that most teachers will have little difficulty in producing a reasonably clear and complete map. Abbreviations will be necessary, and greater clarity is obtained through the use of coloured chalks. The latter has already been referred to, but it may be worth while to experiment as to what arrangement of colours gives the clearest impression at the back of the class; yellow, on a black background, is usually regarded as having the best "throw." A map should always be provided with a title.

4·2·8. During the gradual building up of the blackboard map the pupils will have referred constantly to the atlas, for they must endeavour to identify in the atlas, during the course of the lesson, every name marked on the board. They should not be expected to draw their own maps while keeping pace with the teacher, for their attention should not be divided between suggesting, reasoning and listening on the one hand, and copying on the other. When the blackboard map has been completely built up they may make their individual copies. If, however, duplicated bare outlines of the map are supplied to the pupils for completion, and the material of the lesson is split up so that a pause can be made at intervals for filling these in, time will be saved through the reduction of the effect of disparity between the different pupils' speed of working, and a greater variety will be given to their activity. As regards the notes which will be necessary in addition to the map, these may be taken down roughly during the progress of the lesson and then written up afterwards in proper form, one side of a page being occupied by the map and the opposite page by the notes. Some teachers would prefer, however, to supply duplicated copies of a note-summary of the lesson. This method ensures that each pupil has an orderly and accurate summary and is very economical of time, but it has the serious drawback that it encourages cramming and induces a lack of concentration on the part of the pupil. Such teacher's notes may, however, be given to weaker pupils who have failed to make satisfactory summaries of their own. In any case the teacher's outline should afford a sufficient basis for pupils to add their own notes. When the whole is finished the pupil should have within the compass of two or three pages a concise geography of the region studied.

4·2·9. The graphic method, as outlined above, is no doubt open to the charges of "spoonfeeding" and of leaving too little to the pupil's initiative. But no method is of universal application, and the use of the graphic method, as of any other, will be subject to the teacher's discretion. It may be claimed, however, that the graphic method has the solid advantages of holding the pupil's attention, of securing his co-operation, of accustoming him to an orderly and logical treatment of his subject, and of facilitating revision at a later stage.

The Pupils' Map Summaries

4·3·1. Perhaps this is the place to consider the vexed question of tracing or copying versus freehand or memory drawing of maps. In general, there seems to be no valid reason for objecting to either of the two former methods, except that the first is likely to damage the atlas! After all, the object of Geography is not primarily to teach draughtsmanship, and the pupil who has to insert features in a badly drawn outline is unnecessarily handicapped, and is likely to produce work which leaves on his mind a wrong impression that is difficult to correct. This does not mean that the drawing of maps from memory is entirely to be dispensed with. It is desirable for the geographer to acquire a certain minimum of skill in draughtsmanship; and, again, a pupil ought to be able to form in his mind and to reproduce a fairly correct picture of the outlines and essential details of some of the more important countries of the world. Many teachers would expect pupils in middle and upper forms to be able to draw from memory sketch maps of such areas as coalfields or to show the locations of towns. Apart from such memory maps, as a time-saving device tracing is generally to be preferred to freehand copying, since the outline produced is not generally required for its own sake but in order that certain features may be marked in it. Squared tracing-paper is useful when a map is to be enlarged and for other purposes. It may be added that, where freehand copying is resorted to, the previous marking on the paper of one or two parallels and meridians will do much to ensure a properly proportioned outline.

4·3·2. Too much insistence is sometimes placed upon accuracy in reproducing the details of an outline, whether traced, copied, or drawn from memory. In most cases a generalised, almost diagrammatic, outline is all that is necessary, an outline in which all but the relevant features are omitted. For example, it is sheer waste of time to insist on a pupil's showing in detail the irregularities of the west coast of Scotland. If the Clyde estuary, the Mull of Kintyre, and the entrance to the Caledonian Canal are shown, the rest of the indentations, at least in so far as accuracy of detail is concerned, may be allowed to take care of themselves. Similarly in drawing the west coast of Norway the only features that it is important to show are the Hardanger, Sogne, and Trondhjem Fiords. Proportion, however, is important: for a badly proportioned map renders impossible the filling in of physical or political features with any reasonable degree of accuracy.

Notes and Notebooks

4·4·1. There is much difference of opinion on the degree to which notebooks should be used. Some teachers, perhaps the majority, like them to contain a complete record of the work of a pupil during the whole of his course, while others would confine them to much narrower limits, using them mainly for the purpose of a statistical or graphic record. There are teachers, even, who think that the time spent on notebooks is for the most part wasted, and who specially discourage their use for homework. In the opinion of this Committee, however, a well-kept notebook, besides being useful for revision and reference, provides a standard that the pupil will strive to maintain throughout his course, while the fact that the work is preserved in some permanent form is a salutary check on careless or slovenly methods.

4·4·2. In the lower forms the blackboard summaries will be taken down verbatim by the pupils and will form their notes on the region, though they may be added to at discretion and under supervision. At this stage, especially, pupils will be encouraged to bring newspaper cuttings, illustrations, etc., which may be pasted into their books opposite the notes, or they may write in facts they have gleaned from outside sources.

4·4·3. At a later stage, in middle-form work, the summaries may be written up in the pupils' own words, after having been revised by the teacher; and in upper forms they may be left almost entirely to the pupil, subject, of course, to the teacher's correction.

4·4·4. The notebook, then, will form a permanent record of the pupil's work, not a substitute for, but an addition to, the textbook. It will contain any notes given in class or made by the pupil from his own reading of the textbook or of other sources, while illustrative maps and diagrams will be a prominent feature; in fact, when complete, the notebook should provide a summary of the course, largely in graphic form. A good plan is to reserve one side of the page for maps, pictures, etc., and the other for the accompanying notes. For this purpose the notebook should be interleaved with blank paper, preferably drawing paper. Some teachers will prefer to give the pupil two notebooks, one for class and the other for homework, but it is often difficult to keep the two distinct, and the multiplication of notebooks is to be avoided. In general a notebook should be large enough to contain the work of at least one term, but in any case it is desirable to begin a new term or a new year with a new notebook. This, among other advantages, will enable a pupil whose notebook has not been well kept to make a fresh start. Boys who have not gained promotion at the end of the school year will suffer no harm from having to repeat work already done, and will, it is hoped, be inspired by the desire to improve on past efforts. Notebooks should be preserved from the lower forms upwards, so that when a pupil reaches the upper school he will have at his disposal a record of work done in previous stages that should prove invaluable for revision, whilst much repetition of work will be rendered unnecessary. Some teachers prefer their pupils to keep a separate notebook for statistical records of any kind, and this plan certainly has the advantage of making reference to such records easy; though again it tends to the undesirable multiplication of notebooks. If the work of a whole term can be kept within a single pair of covers, so much the better.

4·4·5. Constant inspection of notebooks is necessary if good work is to be done. This inspection should be undertaken weekly, if possible, though undoubtedly this practice makes heavy demands on the teacher's time. Very often, especially when mapping or other graphic exercises are set, an experienced teacher can see almost at a glance if the work is being properly done. Some special credit may be given at the end of a month or of a term for a particularly well-kept notebook. It must always be borne in mind, however, that the pupil is apt to make the notebook an end in itself, and it is astonishing how much work can be done in combination with almost complete ignorance or lack of comprehension of the subject-matter. In assessing the value of a notebook, then, stress should be laid on the subject-matter rather than on meticulous neatness in its presentation, and special encouragement should be given to the pupil for original work. Some teachers prefer to use loose sheets contained in a stiff cover, and this method has the great advantage that subsequent notes or exercises on a subject already dealt with can be inserted in their appropriate place, whilst a further advantage is that poor work can always be destroyed without affecting the general appearance of the remainder.

4·4·6. It is possible partially to obviate the necessity for a home-made notebook by making use of one of the excellent series published in recent years. The busy teacher will find that any of these series will save him much time and trouble in the selection of exercises and will partially solve the problem of homework. Most teachers, however, will still prefer to construct their own exercises, which must, from the nature of the case, be better calculated to bring out the points insisted on in their teaching than can any ready-made exercises compiled by another. At the same time such a series may be recommended as a valuable subsidiary aid, especially if a selection, only, of the exercises be made, for if full advantage were taken of them little time might be left for other work.

A Lesson with the Epidiascope

5·1. The following paragraphs describe a method in which the epidiascope may be used to illustrate a particular subject, and show the difference between the use of the blackboard (as detailed in §§ 4·2) and the use of the epidiascope in teaching the geography of the Yorkshire, Derbyshire, and Nottinghamshire coalfield to a middle or upper form. Such a lesson requires very careful preparation and it is essential that all maps, diagrams and illustrations to be shown on the screen should be placed in order ready for use near the machine. As a rule, when the epidiascope is in use, the room will be completely darkened, so that the best possible illumination may be obtained on the screen, except when, by means of a "dimmer", the lights are put full on for class reference to atlas, wall map, etc., or half dimmed, while the class copies from the screen. Where no dimmer is available a single light may be put on for the latter purpose.

5·2. The epidiascope does not entirely take the place of the blackboard and other visual aids but merely supplements them. The base map used for this lesson is that of the ordinary school atlas, of which every pupil has a copy. The introductory work will be much the same as for the blackboard lesson, questions and suggestions being elicited from the class. Attention should be paid to the main physical features, gaps and drainage, and an introductory outline map showing the main features of the area should be built up on the board and then copied by the class. This is work that is better done in full daylight. The outline map, prepared beforehand as a slide, may be retained in the diascope and continually referred to in the course of the lesson. As in the blackboard lesson the teacher may well divide up the work into sections, with now and then a pause, with the lights on, for discussion, note taking, possibly from collective observations by the class, or other means of varying the pupils' activities. This obviates the disadvantages of keeping the room in darkness for any considerable length of time (which for psychological reasons is unwise) besides following a sound method of teaching.

5·3. The geological map may then be projected and the chief zones—Carboniferous Limestone, Millstone Grit, Coal Measures, Magnesian Limestone and Triassic formations—pointed out. The geological section can best be shown on a large scale block diagram[1] drawn on the blackboard, or, to save time, prepared beforehand and put up for the class to copy. This, again, should be done in daylight, though it may be supplemented by showing a more detailed section on the screen, either by the episcope or by the diascope.

5·4. The contrast between the vale of York and the Pennine slopes, and the convergence of routes on the Humber estuary, can be observed by reference to the pupils' own atlases or shown on a map by the episcope. The epidiascope method is chiefly valuable in the detailed examination of the actual coalfield. The division of the coalfield into (i) outcrop area and (ii) concealed coalfield may be shown exactly by enlarging a detailed map from some more advanced work on the region.[2] A map should be prepared also to show the subdivision of the coalfield into (1) the West Riding Wool Textile District, (2) the Middle Don Steel District, (3) the Nottingham Textile and Engineering District, (4) the Concealed Coalfield Mining Area around Doncaster and (5) the Oil District around Eakring. Each of these areas may be taken in turn, and a map shown of the distribution of industries, followed by actual pictures

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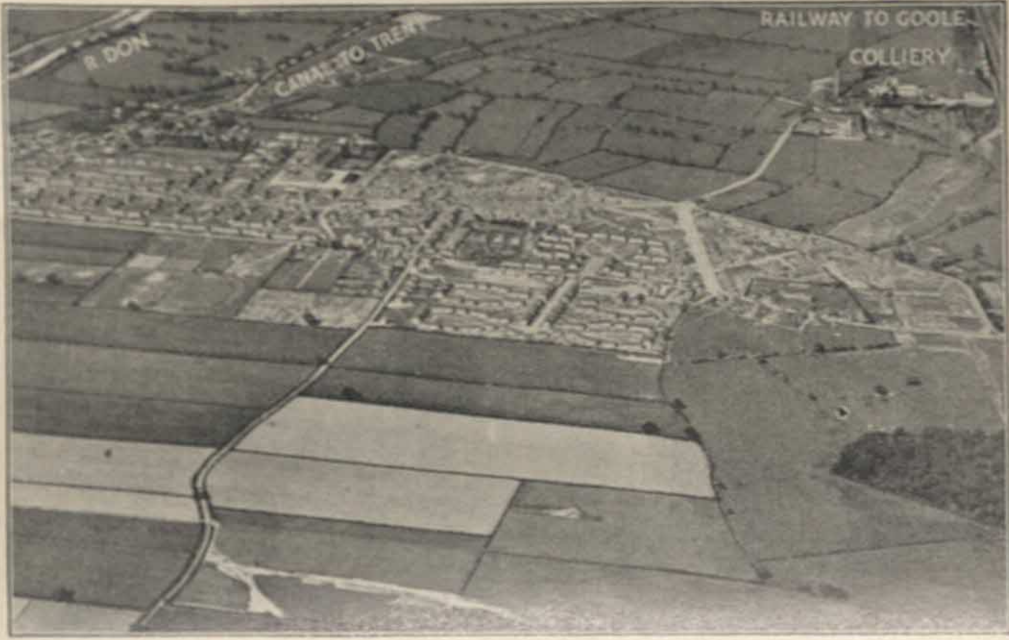
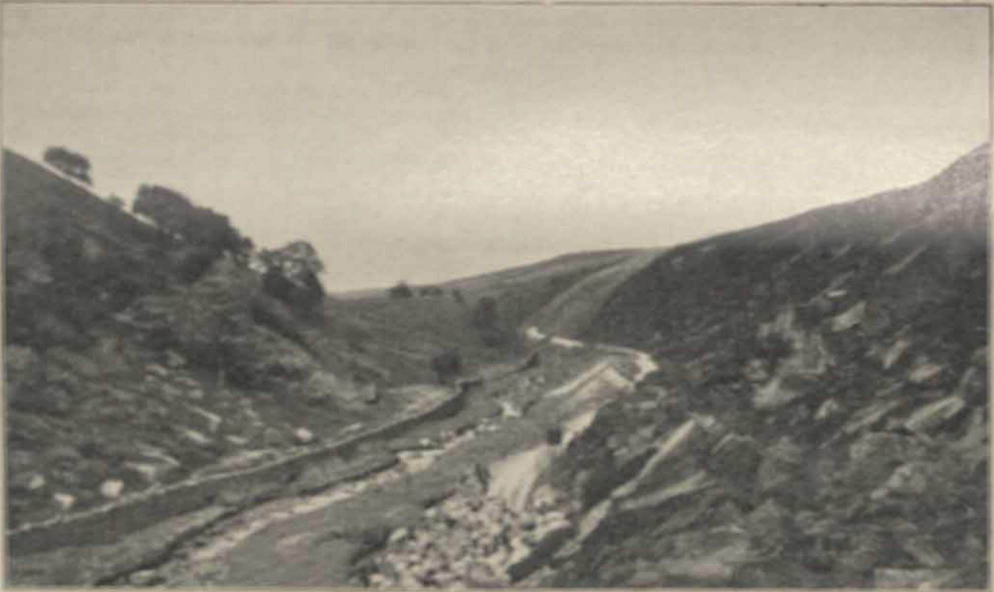
[1] See § 4·2·3.

[2] For example, Rodwell Jones's *North England*, Routledge, or *Géographie Universelle, Les Iles Britanniques*.



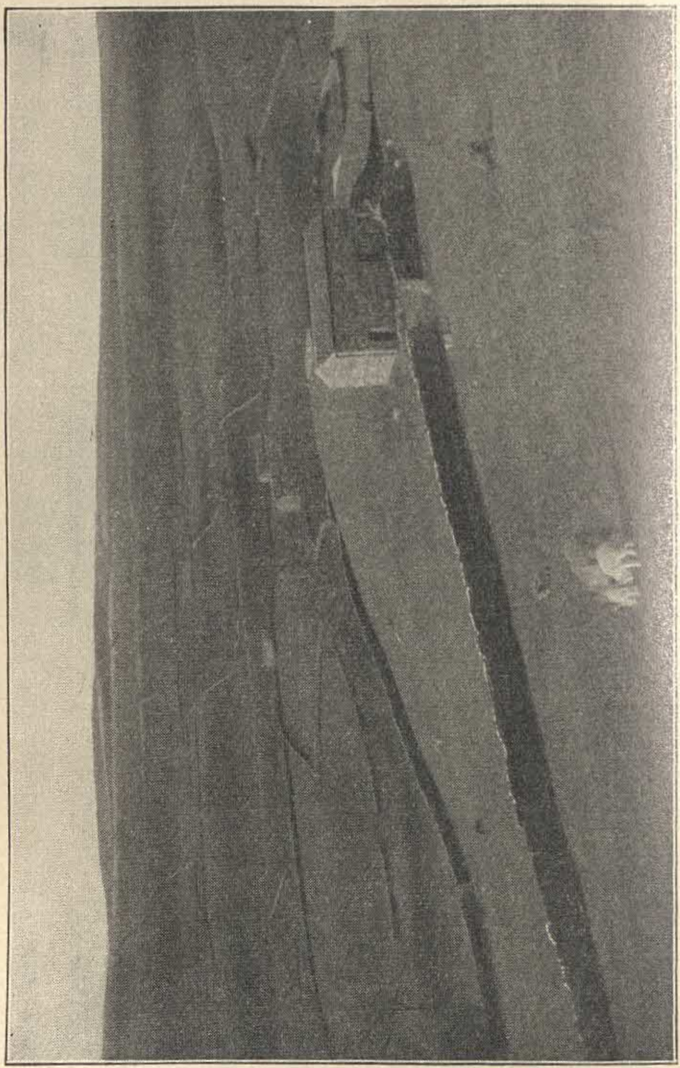
[Aerofilms.

FIG. 9 – THE VALE OF YORK NEAR STAINFORTH, SHOWING LARGE CULTIVATED LEVEL FIELDS



[Walter Scott.

FIG. 10 – THE MILLSTONE GRIT MOORS NEAR HEBDEN GHYLL, SHOWING UPPER LIMIT OF TREES, STONE WALL, STREAM, AND FLOCK OF SHEEP



[W. F. Taylor.

FIG. 11 – CARBONIFEROUS LIMESTONE COUNTRY

The sheep pastures consist of treeless grassland divided into fields by stone walls of the mines, furnaces, mills and oil pumps described. Maps of the separate districts can be obtained from such sources as have been mentioned, while photographs of mills and works are easily available. Pictures and diagrams showing the various processes of manufacture may also be shown on the screen. Reference may be made to the special method of transport used on the Aire and Calder Canal for bringing coal from the Barnsley area to the canal port of Goole. The position of the port of Hull may be noted, and many illustrations are published of its docks and railway connections. Finally, the lesson may be summarised in a sketch map to be copied by the class.

5·5. In a subsequent period progress may be tested by requiring pupils to draw a memory map of the most important features of the area discussed, or, if little time is available, by showing the physical feature map on the screen and by asking a number of short questions which can be answered in one or two words on paper. Where a class includes backward pupils, the effect of the epidiascope method is to stimulate interest and to raise the standard of work of those who are either dull or indifferent in a shorter space of time and with a smaller expenditure of energy on the part of the teacher than is possible without such visual aid. With a well-graded class of intelligent children, however, although the ordinary blackboard methods are quite satisfactory, the epidiascope lesson reaches its maximum usefulness. Such a class will not expect merely to be interested or amused by the pictures but will readily appreciate the points they bring out, so that the screen will be serving its full purpose as an effective teaching medium.

5·6. Where lantern slides are available their superior illumination and definition, when shown through the diascope, give them an advantage over the reflected picture of the episcope, but in many cases both parts of the apparatus may be used in the course of a lesson, a mere flick of the lever changing over from one to the other;

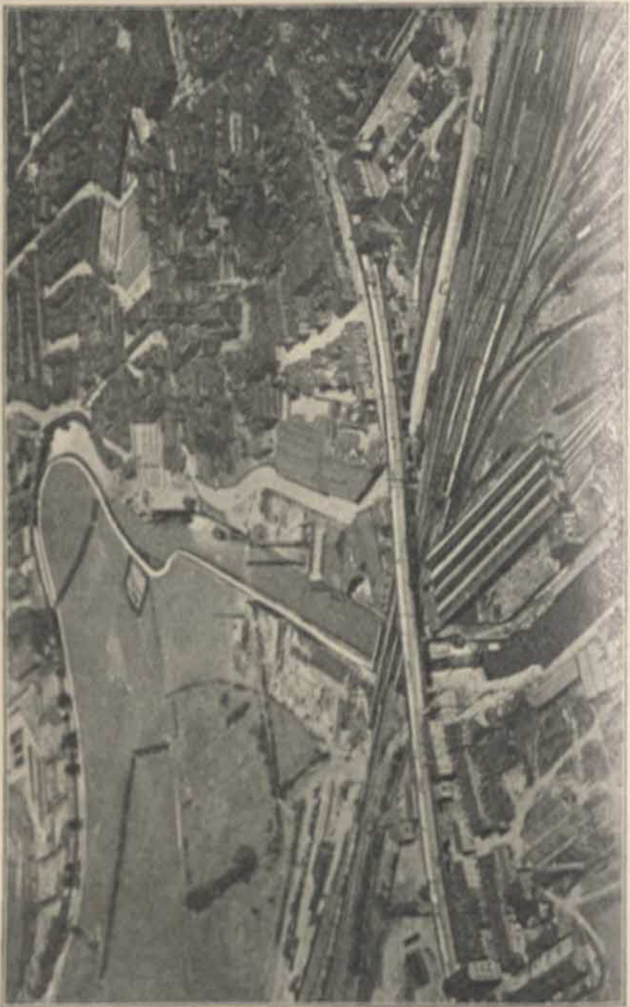
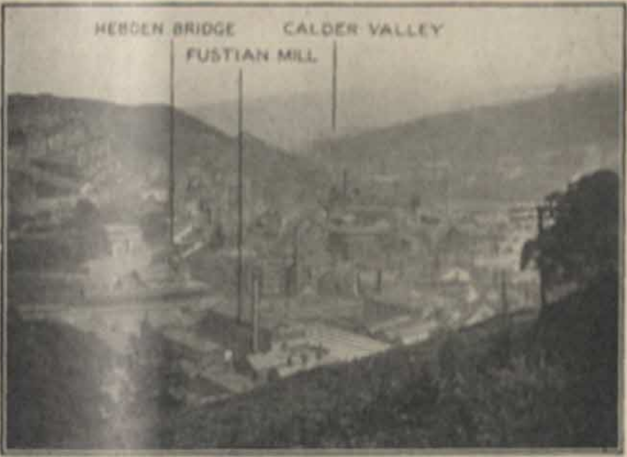


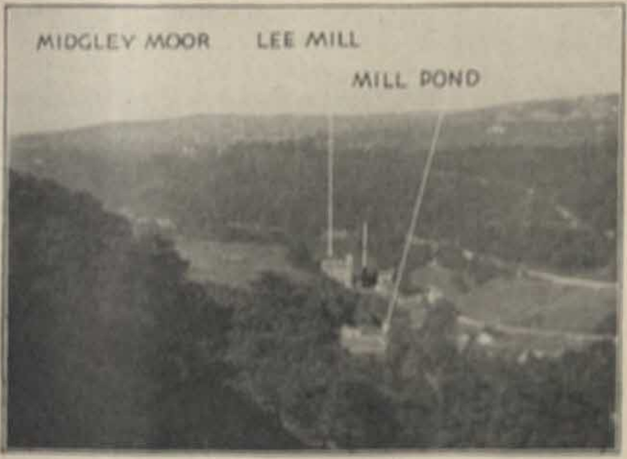
FIG. 12 – DONCASTER (LOOKING WEST), SHOWING RAILWAY SIDINGS AND THE DON CANAL

[Aerofilms



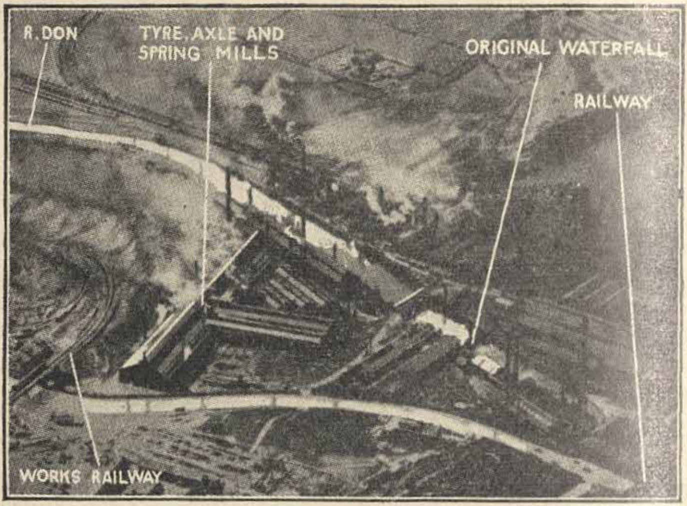
[By courtesy of E. E. Lupton.

FIG. 13 – LEE MILL, HEBDEN VALLEY



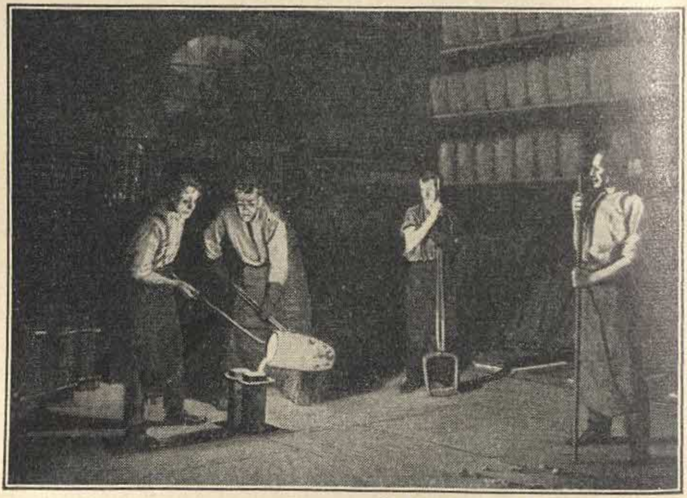
[By courtesy of E. E. Lupton.

FIG. 14 – WOOLLEN MILLS AT HEBDEN BRIDGE



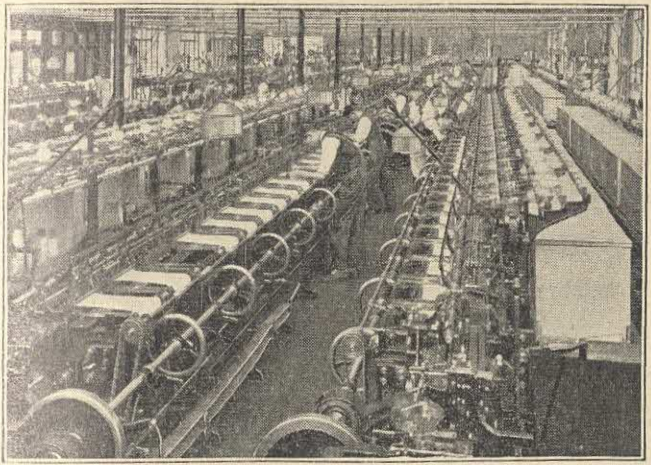
[*By courtesy of United Steel Companies, Ltd.*

FIG. 15 – AN AIR VIEW OF PARTS OF THE TEMPLEBOROUGH AND THE ICKLES WORKS, ROTHERHAM



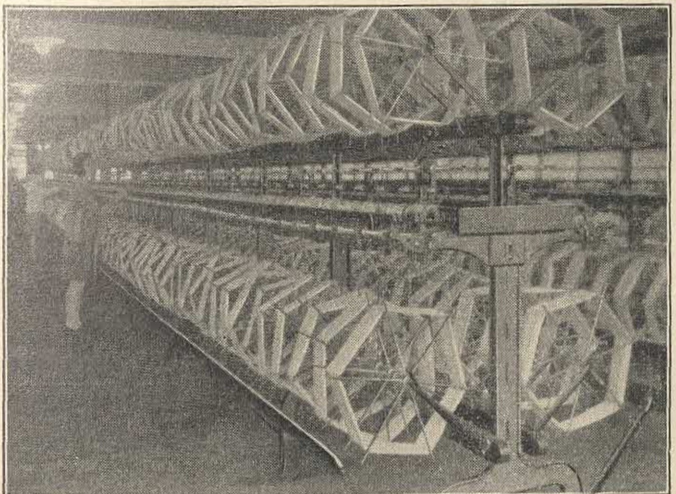
[*By courtesy of Messrs. Peter Stubs, Ltd.*

FIG. 16 – CRUCIBLE STEELWORKS, ROTHERHAM



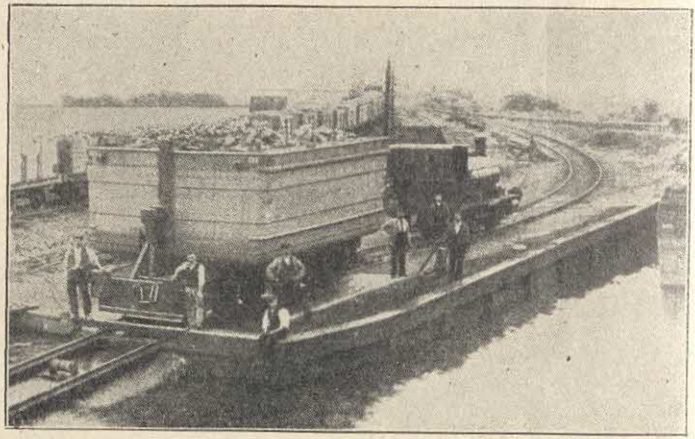
[*By courtesy of I. & R. Morley, Ltd.*

FIG. 17 - LATEST TYPES OF KNITTING FRAMES, SUTTON-IN-ASHFIELD



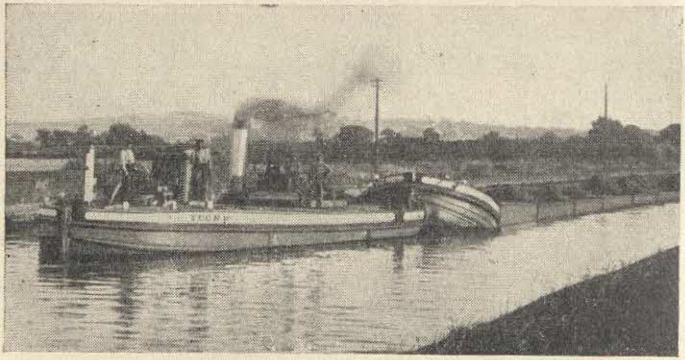
[*By courtesy of I. & R. Morley, Ltd.*

FIG. 18. – SILK THROWING, SUTTON-IN-ASHFIELD



[*By courtesy of the Aire & Calder Navigation.*

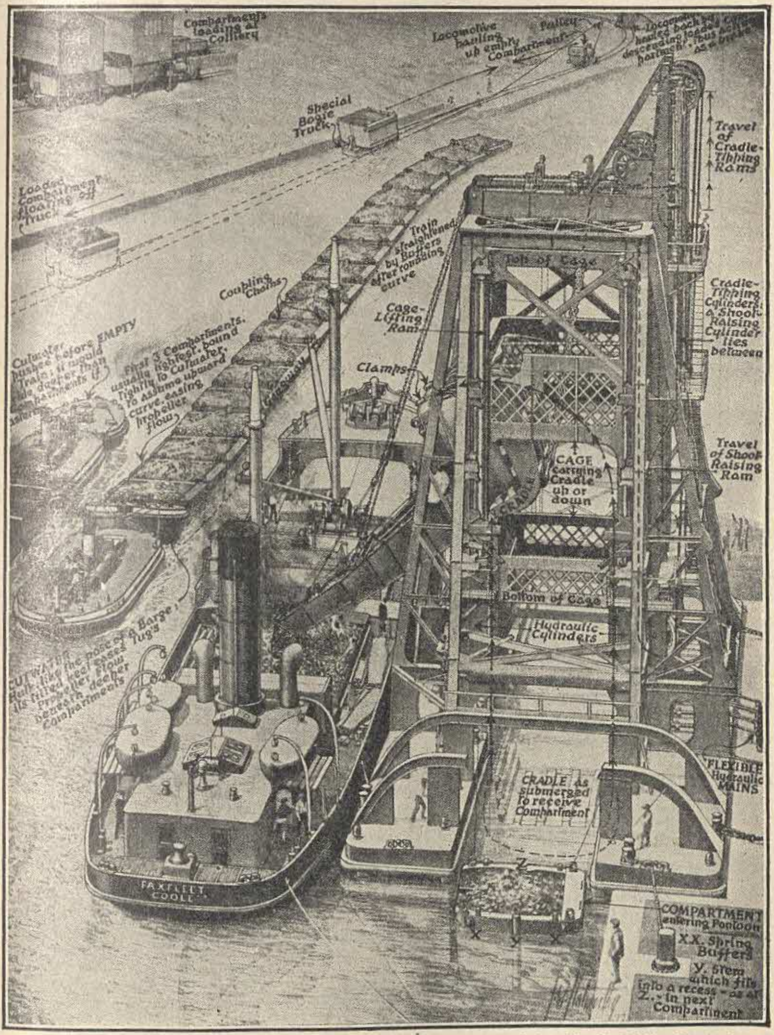
FIG. 19 – METHOD OF LAUNCHING A COMPARTMENT BOAT



[*By courtesy of the Aire & Calder Navigation.*

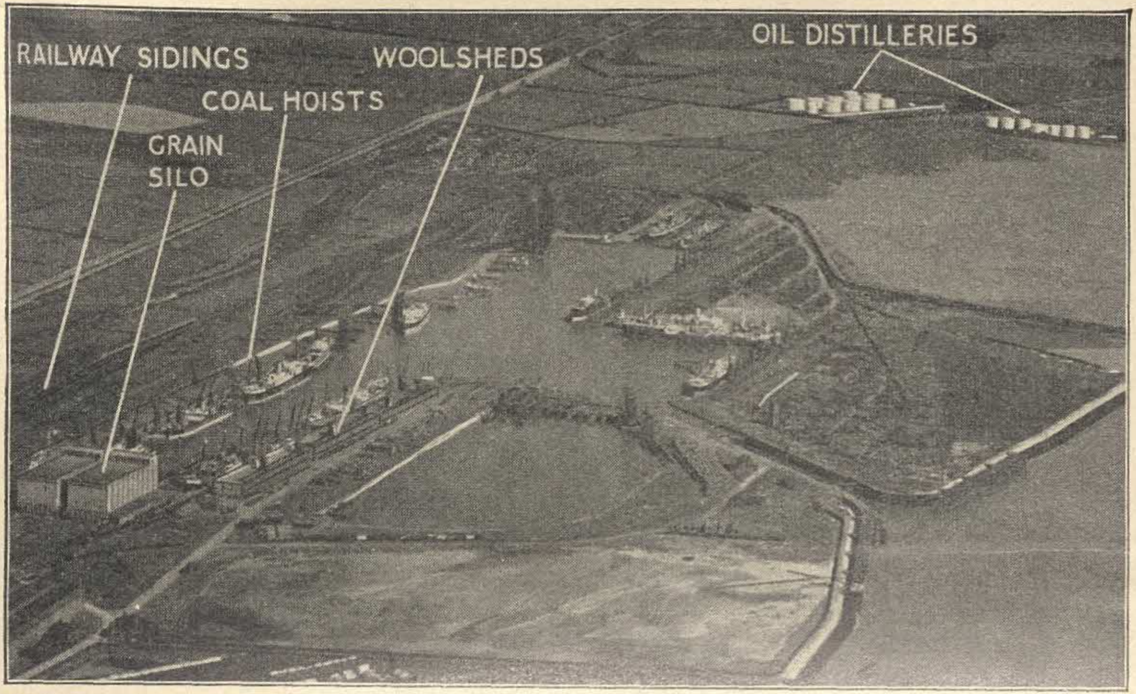
FIG. 20 – THE AIRE AND CALDER CANAL, SHOWING A CHAIN OF COMPARTMENT BOATS

By the use of chains of compartment boats, the Aire and Calder Canal, which dates from 1698, has been able to retain a considerable share of the traffic in export coal in spite of the increasing competition of the railways. It should be noted, however, that most of the goods traffic is rail-borne.


Compartments loading at Colliery
Locomotive hauling up empty Compartment
Pulley
Locomotive hauled back by descending loaded Compartment, thus acting as a brake
Special Bogie Truck
Travel of Cradle-Tipping Rams
Loaded Compartment floating off Truck
Train straightened by Buffers after rounding curve
Top of Cage
Coupling Chains
Cage-Lifting Ram
Cradle-Tipping Cylinders: a Shoot-Raising Cylinder lies between
Cutwater before EMPTY pushed before Train; it would ride deeper than Compartments if
First 3 Compartments usually lightest, bound tightly to Cutwater, to assume upward curve, easing propeller flow
Clamps
Travel of Shoot Raising Ram
CAGE carrying Cradle up or down
CRADLE
Bottom of Cage
Hydraulic Cylinders
CUTWATER Hull, like the nose of a Barge; its tilted keel eases Tug's propeller flow beneath deeper Compartments
FAXFLEET GOOLE
FLEXIBLE Hydraulic MAINS
CRADLE as submerged to receive Compartment
Z
X
Y
X
COMPARTMENT entering Pontoon
X.X. Spring Buffers
Y. Stem which fits into a recess – as at Z. – in next Compartment

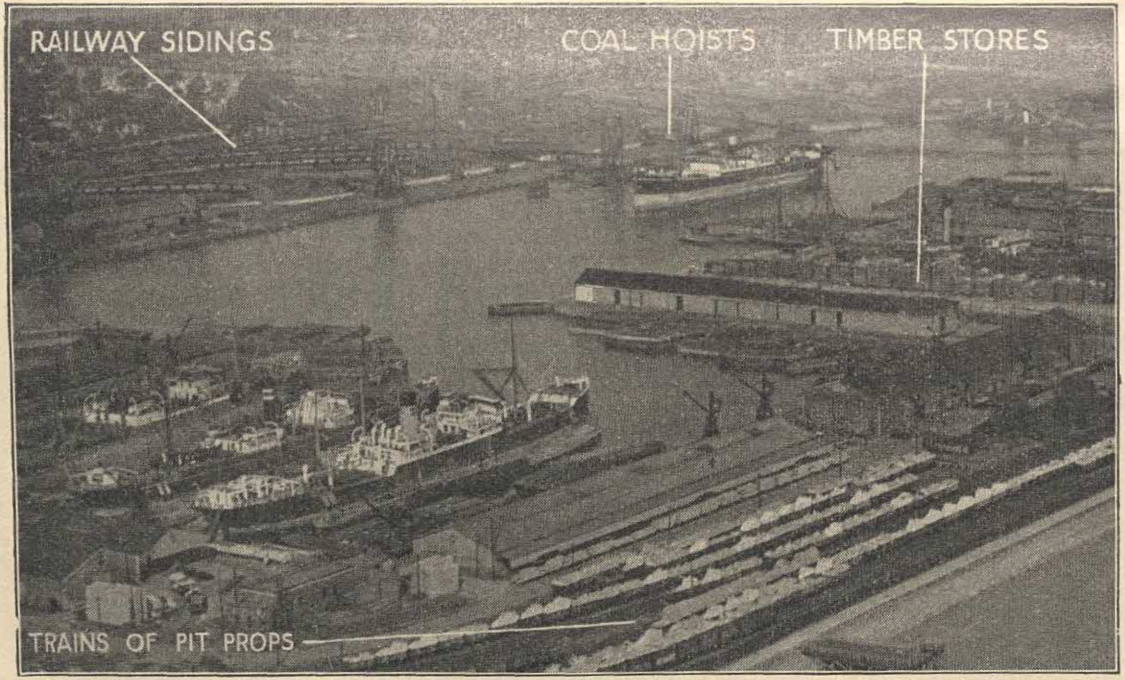
[*By courtesy of the Aire & Calder Navigation.*

FIG. 21 – DIAGRAM TO SHOW THE WORKING OF THE COMPARTMENT BOAT SYSTEM AT GOOLE DOCKS



Aerofilms.] [*By courtesy of British Railways.*

FIG. 22 – ALEXANDRA DOCK, HULL



Aerofilms.] [*By courtesy of British Railways*

FIG. 23 – KING GEORGE V DOCK, HULL

and in this connection home-made slides are often useful. Slides of outline maps, too, are available, prepared so that any required details may be inserted, for example to show the position of the region studied in a wider setting.

5·7. The accompanying photographs on pp. 142–144 and 146–153 are intended to illustrate the kind of picture which can form the basis of a good epidiascope lesson, but because of the quality of the paper and the method of reproduction here used they may well, like so many other published photographs, be unsatisfactory prints for showing on the screen. Great care should be exercised in selecting well-printed photographs. For some purposes drawings may be more useful than photographs, though they may not be so convincing to the pupil.

The Use of Films

6·1. There have always been teachers who could do their work efficiently by oral methods, and, indeed, until the invention of printing, the oral method of teaching was the only one possible. Nevertheless, the spoken word does not stimulate mental activity to the same extent as the printed word. The multiplication of printing presses has made the printed word all-powerful, and we have reached the stage where the textbook may tend to dominate the work of the schools—not always with the happiest results. At the beginning of the present century, however, a new instrument in the dissemination of ideas, the film projector, assumed a practical form, and, although its use as an educational medium is still at the experimental stage, it is quite possible that the cinema will revolutionise intellectual life to an extent comparable with the effect of the printing press in earlier times.

6·2. At the present time there are several hundred film projectors in use in British schools, though in the schools of Canada, France, Germany, Italy, and the United States the cinema is much more extensively used than in this country. The U.S.S.R. is using the cinema with the object of raising the standard of education of more than a hundred different racial groups to a common level. As a result of experiments carried out in this country, it is clear that the cinema is one of the most important mechanical aids to education yet invented, and there is conclusive evidence that a carefully planned course of film lessons may have the effect of bringing the mental activity of the more backward up to the level of the more intelligent pupils.

6·3. The film may be used to enable fundamental ideas to be grasped more quickly than is possible when oral teaching is used. Every teacher knows how much effort is expended in the wearisome repetition of work before backward pupils can fully arrive at new concepts; and there appears to be no reason why the cinema should not be used to overcome the limitations imposed by ordinary classroom conditions. There are also pupils who, though not without intelligence, are unable to appreciate new ideas to the full through lack of imagination. In Geography, perhaps more than in any other subject, the film is able, by the faithful portrayal of peoples and activities beyond the experience of the pupils, to convey a sense of reality unattainable through any other means at the teacher's disposal. In its appeal to the imagination the film creates interest; but it also stimulates thought and facilitates expression, and thus lays the foundation of real knowledge. The film, then, at its best, appears to possess much the same educational features as the "still" pictures shown through the medium of the lantern or epidiascope. Indeed, used properly, the "motion" picture has certain undeniable advantages over the "still." A greater sense of actuality is given by movement, and for this reason the film has a stronger appeal and arouses a keener interest than the still picture. It must not be thought, however, that all the functions of the latter can be better performed by the film. In a great many important, even fundamental, aspects Geography is static. Land forms in all their immense variety, and the appearance of the many types of natural vegetation, dwellings and their grouping into villages or towns are subjects in which movement tends to distract attention from the essential facts to be studied. In fact, it is only when movement is an indispensable feature of the picture that the film is in place. One of the most important functions of films in Geography teaching is to illustrate detailed processes (e.g. spinning, foundry work) and more extensive operations (e.g. farming, mining, irrigation) which cannot be so readily or quickly explained by other methods. It should be borne in mind, too, that the devices of slow and speeded-up motion, as well as the use of animated diagrams, can make clear movements and processes which it is otherwise difficult to explain. On the other hand great difficulty may be experienced in following complicated mechanical operations shown at their normal speeds on films.

6·4. Since the film projector is an expensive instrument, its installation can be justified only when frequent and regular use can be made of it. It must be admitted that developments in the design of projectors at present far outrun those in the production of films for classroom use. Credit is due to those film-producers who have undertaken the work of preparing educational films, but, if the film lesson is to become an integral part of the school curriculum, it is necessary that close contact should be maintained between the film-producer and the teacher who will have to make educational use of the film. As a rule, the film-makers have a thorough knowledge of the specialised work of the studio but know little or nothing of teaching technique, and, if waste of time and money is to be avoided, it is important that the film-producer should understand the difference between the exhibition of films in a large hall and the piecemeal and specialised methods of work in the classroom. It is equally important that the teacher should be willing to modify his classroom technique to an extent which will ensure that real educational advantages will accrue from the use of films. The *National Committee for Visual Aids in Education* is now planning the production of educational films for children of different age groups. Here again co-operation between the Committee, the teachers and the producers is vital.

The Film Lesson

6·5. At first, the only method of using the cinema for educational work was to take pupils *en masse* to the picture house to see such films as "With Byrd to the South Pole"; and indeed, though films of this type were not intended primarily for use in schools, many of them contained much that was of educational value. This method is not always satisfactory, as it is not unusual for the programme to contain, in addition, a strongly spiced sex drama or a trans-Atlantic "comedy" of negative educational value. In the case of London schools, it is possible to make use of the excellent film programmes of the Imperial Institute. These are generally of great interest in the teaching of Geography, but the teacher should make it his business to see the film before it is exhibited to the class, in order to prepare the lesson of which the film forms a part.

6·6. The great disadvantage in taking classes from school to the picture house is that every such visit upsets the time-table of the school. If every subject could find suitable material in the films shown in the picture houses, it might be possible to secure an equitable adjustment of the time-table. But, of films having educational value, a fairly high proportion are of a geographical character, and the advantages of this, from the point of view of the Geography teacher, are more than outweighed by the disturbance caused in the other subjects and by the possibility that the internal harmony of the staff may be upset. The only satisfactory arrangement is for each school to have its own projector and to take steps to build up a film library of such films as will have regular use. It will then be possible to make use of films as part of the ordinary work of the school, each film shown being designed to exhibit specific points which cannot be dealt with effectively by other means.

6·7. Not only must the film be designed to show something definite, it must also be made to fit into the ordinary lesson period of thirty to forty-five minutes. Opinions differ as to what form the lesson should take, but if the film is to rank with the other aids used in teaching Geography it must provide material on which the pupils can work, and from which, as a result of this work, they really learn something. The actual running time of the film can therefore be, normally, only a small proportion of the total time taken up by the lesson. As a result of long study by one authority it has been estimated that each minute of showing of a film provides approximately 7 minutes' work. On this basis it would seem that in a forty-five minute lesson the longest film which can be used is one running for about six or seven minutes. Many may be shorter than this. On the other hand, there are, almost certainly, occasions when films running for a longer time are of value. This applies more especially to films the worth of which lies in the atmosphere they create rather than in their factual content.

6·8. The problem for the teacher is how to use, as an integral part of an ordinary lesson period, a film which, in most cases, takes up to seven minutes to exhibit. Amongst the comparatively few teachers who have had the chance of developing the technique of the film lesson several different opinions have arisen as to the most effective methods of presentation. The difficulty of making definite suggestions is increased by the fact that there are as yet so few films which have been designed as teaching instruments. Most existing films are too long and many contain a great deal of irrelevant matter; and there are other criticisms, dealt with in a later paragraph. Films which are suitable for classroom use may perhaps be divided into three classes: (*a*) those which merely illustrate or supplement teaching given by other methods—used, for animated subjects, much as lantern slides or episcope pictures are used for static ones; (*b*) those which provide the basic material for a lesson or a group of lessons; and (*c*) longer films of "background" type—e.g., documentaries—a few of which are so good that the time taken up in showing them is well spent.

6·9. In whatever way the film is used in the classroom, it cannot be over-emphasised that the teacher should previously have seen it through a sufficient number of times to be thoroughly familiar with all its details. The methods of using classes (*a*) and (*c*) above need little comment. It may be pointed out, however, that there are at present very few of class (*a*) in existence, while of the many in class (*c*) only a very small proportion are really suitable for use as part of an actual lesson. Regarding the technique of using films of class (*b*) there are wide differences of opinion. Such films may be designed purely to instruct; they may provide a basis for discussion; or they may, in addition to one or both of these characteristics, possess emotional appeal. In the case of a factual film it may be desirable (though many teachers would disagree) to break up the first showing into sections, using the intervals for question and answer or for less formal discussion. In other cases, however, the continuity of the film is one of its essential features, and to interrupt it, at any rate during the first showing, may cause the loss of much of its value. There is general agreement, however, that it will almost always be found necessary, or at least desirable, to show the film through twice during the lesson, and that steps should be taken by the teacher to ensure that the ground covered by it is consolidated and followed up in the same way as when other methods of presentation are used. Thus the final part of the lesson should comprise a discussion of important points and a testing of what the pupils have gained from the lesson. Where pupils

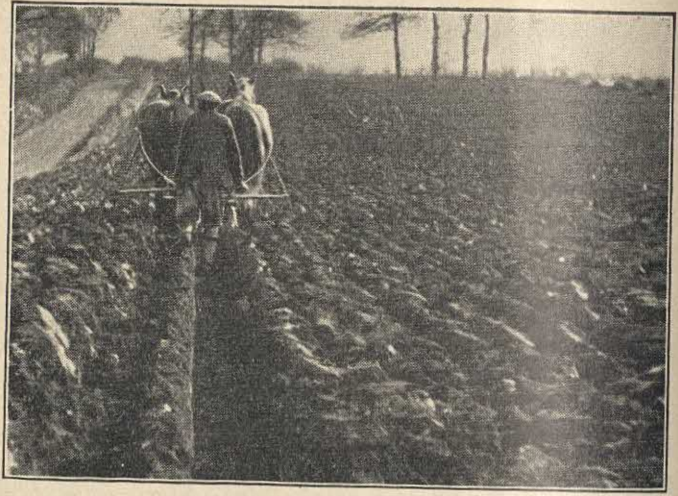


FIG. 24 – PLOUGHING (OCTOBER)

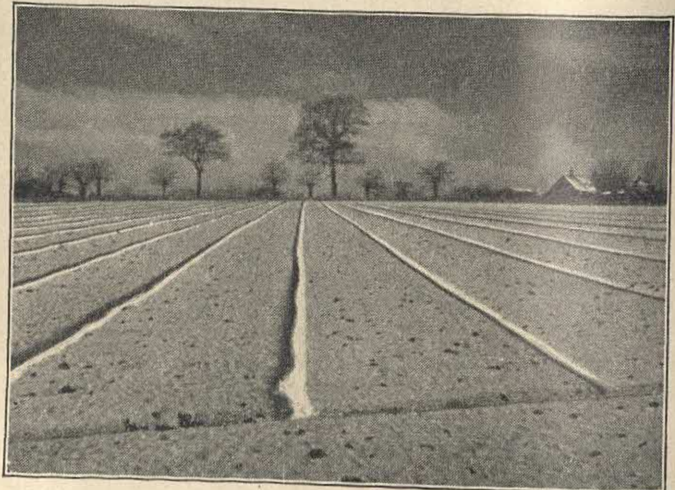


FIG. 25 – FROST BOUND (JANUARY)

Figures 24-27 are " stills " from the film " The Wheatlands of East
who have

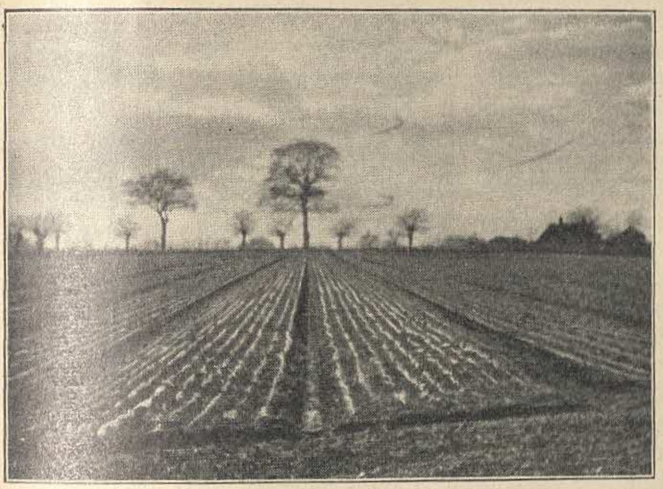


FIG. 26 – GROWTH (FEBRUARY)

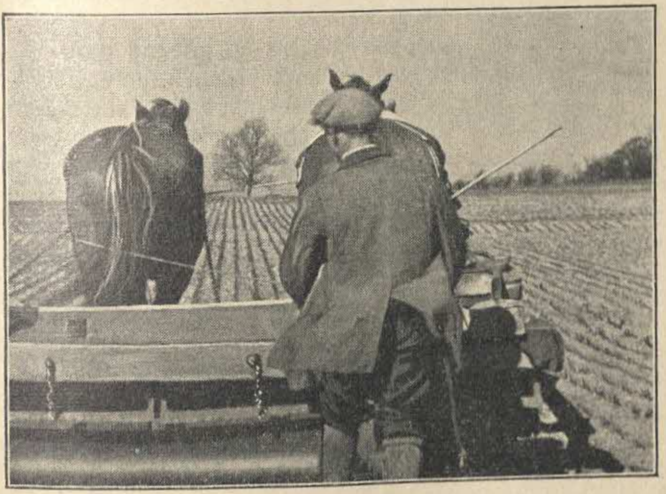


FIG. 27 – ROLLING (MARCH)

Anglia," and are reproduced by courtesy of G.-B. Instructional, Ltd., produced the film have had some experience of films in class they may generally be left to prepare their own summaries, with the necessary sketch maps and diagrams, but with beginners and with younger pupils it is advisable to make the class answer definite questions.

6·10. The film should be chosen so that it can be made to fit into the course. The course should not be planned merely to include certain films. Generally speaking, the film industry is prepared to give the teachers what they want, but much more co-operation is necessary on both sides before films satisfactory in both quality and quantity will be forthcoming. The activities of the National Committee for Visual Aids should ensure the production of many more films of real value in teaching than have ever been available in the past; but it is the teachers themselves who must make clear precisely what films they want. The teacher should exercise the same careful discrimination in the choice of films at the present time as if the supply were unlimited.

6·11. Besides taking its place as an integral part of a class lesson, the film may be employed to supply a background to teaching of the more usual type. The illustrations on pp. 160–161 furnish a hint of what is meant. After a lesson has been given on farming in East Anglia, a film showing the operations that have been described will give actuality to the account and will help to correct any erroneous or vague impressions that may have been formed, provided the film is reliable in other respects. If a companion film, showing harvesting operations, be shown, the story of the farmer's year will be fairly complete. A quarter of an hour or so in showing the films will prove to be time well spent. A brief running commentary may be given by the teacher as the films are being run through. Notes based on the lesson and corrected by what has been learned from the films may be written up as home work. It should be said, however, that only in schools with an unusually generous allotment of periods to Geography will there be time to show many such films during actual lessons. Many of the films exhibited at the Imperial Institute may be borrowed free of charge, either in the original 35-mm. form or in abridged 16-mm. editions, prepared for the use of schools. (For details of sources, see Appendix VI.)

6·12. While general agreement has still to be reached on the relative merits, for teaching purposes, of silent and sound films, there are certain qualities of many existing films which condemn them from the teaching point of view. In the case of silent films the captions are often couched in flamboyant or facetious language and frequently fail to interpret correctly the geographical aspects of the film. They should be short, strictly matter-of-fact and to the point. They should be in plain lettering, of sufficient size, and should remain on the screen long enough to enable the pupils for whom the film is intended to read them and grasp their meaning. In the case of sound films some existing commentaries tend to be flippant, and fail, in the same way as captions, to perform their proper functions. Some have a musical background, an undesirable distraction in geography classroom films. The best plan, until improvement has been secured in these directions, is for the teacher to provide his own commentary, which is more likely than that provided by the producer to be based on purely geographical considerations. To achieve this successfully, he must, of course, have an intimate knowledge of the film. The addition of natural sound to a film is an undeniable advantage, provided that the sounds have been recorded at the same time as the pictures and not added subsequently in the studio. The latter practice sometimes gives rise to extraordinary results. In one film, for instance, a plough, a comparatively silent implement in use, is made to sound like a piece of noisy clanking machinery.

6·13. In the case of a film which forms the basis of a lesson, *necessary* maps and diagrams should be included, though opinions differ as to whether *all* the maps to which reference has to be made should form part of the film. The conclusion to which the Committee has come is that it is undesirable that included maps should simply duplicate wall or atlas maps, but that there is a strong case for the inclusion of large-scale maps or plans showing significant detail not to be found elsewhere. Such maps should, however, fall naturally into place; the need for them should be felt at the points where they are introduced. Whether the film should be stopped so that reference may be made to other maps—wall maps, maps drawn on the blackboard or projected by a still projector—depends on whether the interruption of the film helps or spoils its psychological effect.

6·14. There are many films which, while they contain good geographical material, are unsuitable for use in the classroom because they are too long or do not fit into the syllabus. Such films may with advantage be used out of class hours, e.g., for meetings of the school Geographical Society. They can do much to broaden the pupils' outlook and can give rise to stimulating and valuable discussion. Attendance is purely voluntary, the classroom atmosphere is absent, and no formal work can be set. The films can be chosen in advance by the children—e.g., by the committee of the Society—and, if critical viewing is encouraged, will prove their value not only in the enhancement of interest in geographical problems but also in the fostering of careful and accurate observation. There is probably a stronger case for sound films with spoken commentary for these meetings than for lessons in the classroom; but many silent or natural sound films are also suitable.

Homework

7·1. The most economical use of the time allowed for homework, which, below the Sixth Form, may be from half an hour to an hour per week, presents one of the most difficult problems the Geography teacher has to solve. The length of the homework periods allotted to Geography compares unfavourably with that to which the older, more firmly established subjects are considered to be entitled: and yet the Geography teacher, in the four or five years over which his course extends, is supposed to cover effectively, and on by no means a restricted scale, the Geography of the whole world. The homework periods, however, restricted though they may be, constitute a valuable addition, which few teachers can afford to neglect, to the time spent on Geography in the classroom.

7·2. A few principles may here be stated which, in the opinion of the Committee, should be observed in setting homework. They do not, of course, pretend to be exhaustive:

(1) Directions should be clear: a definite task should be assigned and it should have real geographical value.

(2) The homework should be closely connected with the class work, either by way of preparation or of consolidation; or it should be of the nature of an illustrative exercise.

(3) It should give the pupil as much opportunity as possible for independent thought and for research. Although the textbook will necessarily be the chief source from which information can be obtained, the pupil should be encouraged to supplement it by reference to other books, magazines, newspapers, films and, in appropiate cases, by personal observation.

(4) It should be varied in nature and generally take the form of a task the proper performance of which can be easily tested. Maps and graphical, statistical and written exercises are therefore preferable to reading and learning, though these should not be ruled out altogether. The mere copying of a map or reading of a passage from the textbook is of little use unless the pupil knows he will be tested afterwards to find out what he has learnt.

(5) It should be confined to an amount which can comfortably be covered by the average pupil in the allotted time.

7·3. It is needless to specify the forms that Geography homework usually takes: they will be familiar to all teachers. In the lower forms many teachers will prefer to dispense with homework altogether; and, indeed, one of our correspondents has experimented for a term in this direction even in the middle school, and, in his own words, "finds his pupils none the worse for it." But this is an exceptional case: homework will normally be set from the lower school upwards.

7·4. In the lower forms, where perhaps no textbook is in use, some simple mapping or other written exercise closely connected with the teacher's previous lesson, the answering of a set of questions for instance, is all that can be attempted. If a textbook is in use, a single topic occupying one or two paragraphs of the book may be set for intensive study, but, again, the work should always be tested.

7·5. Even in the middle school undirected reading of the textbook is to be discouraged as a form of homework. Such reading will be much more effective if the teacher has indicated beforehand the important topics, and has given a brief summary of the pages to be read by way of preparation for a subsequent lesson. Or he may give his lesson first and then direct his pupils to the textbook as a means of consolidating or amplifying what they have been taught. In this way they will get the advantage of seeing their subject from two points of view. Some teachers set their pupils to summarise a portion of the textbook, but the results, without some previous guidance, are apt to be discouraging. The art of writing a good précis is difficult to acquire, and the summaries presented too frequently take the form of portions of the text copied out *in extenso* while other portions are entirely neglected. A written summary is best made in the form of notes under classified headings. A good method is to require a map with notes which will form a fairly adequate summary of the pages selected and will prove very useful for purposes of revision.

7·6. The writing up of class notes is also a common form of homework exercise. But mere copying of notes is a mechanical task only. The pupil should be required to expand what he has taken down in class, either from his textbook or his atlas, or from some book of reference, specified or unspecified, or, it may be, from personal observations; in fact, to engage in some elementary form of research.

7·7. Some teachers use the homework periods in an entirely different way from any of the methods suggested above. They leave certain sections of the course to be done entirely by their pupils at home, concentrating their attention in class on such parts of the syllabus as they think most important, and which they will thus have time to deal with adequately. It is needless to say that, when this course is followed, systematic testing will be necessary to ensure that the pupils are doing their part, and documentary evidence in the form of maps and notes should be required. On the whole, unless the teaching time allotted to Geography is very limited, this practice can hardly be recommended.

The Testing of Knowledge

Drill

8·1·1. Under this heading may be classed any short oral test, regularly repeated, and involving a knowledge of facts only. The first essential is repetition, the same question being repeated in successive tests or even, perhaps in a different form, in the same test. Drill, too, is necessarily oral, so that every pupil in the class may receive the benefit of the repetition and so that errors may be immediately corrected. The main object of such exercises is to ensure the memorising of the fundamental facts of the lesson which is being studied. But drill also gives precision to the pupil's knowledge; it enables the abler pupils to help the weaker; and it serves as a test of progress and of grasp of detail for the information of the teacher. It is primarily a method for use with younger pupils, but one which may sometimes be used with profit when teaching seniors, e.g., when revising the elements of the geography of a region before embarking on a more detailed study.

8·1·2. Almost any geographical knowledge can be tested in this way, but the type of question, so long as it fulfils the essential conditions mentioned above, will vary with the subject. The question, however, should be framed so that the answer required is brief, a word or two, or merely the indication of a place on the map. Questions on topography, names of physical features, and similar subjects will take the latter form; others may require a name or fact to be given relating to a locality indicated in the map by the teacher; others again may be entirely verbal. Some teachers construct maps especially for drill purposes, on which are marked letters and numbers corresponding to certain "minimum facts" concerning the region under consideration.

Other Oral and Written Tests

8·2·1. Apart from the occasional and more elaborate and formal examination, brief tests should be a regular feature of the lesson. Since the object is to test knowledge alone, questions should be set in such a way that they can be answered in a few words, not necessarily by complete sentences. Thus the time of neither pupil nor teacher is wasted. The questions will often take the form of filling in blank maps or of drawing sketch maps.

8·2·2. Occasionally the testing may be given over to the pupils themselves, taking the form of "games" in which the pupils take sides and ask one another questions, or score on questions asked by the teacher.[1]

Application

9·1. The knowledge acquired and tested by methods such as those outlined above is applied in the subsequent study of similar or contrasting regions, but, if time permits, a detailed comparison should be drawn between the region under consideration and others previously studied. This comparison may take the form of a series of exercises to be worked by the pupils. Apart from its geographical value, the "compare and contrast" type of question is excellent practice in analysis, when once the full meaning of comparison and contrast has been grasped by the pupil—not so simple a matter as it may appear to the inexperienced teacher—although it is clearly not the kind of question to be set to junior forms. Care must be exercised, too, in selecting regions to be compared or contrasted. They should, for instance, have some fundamental points of resemblance, such as approximate equality of area, and should not be too complex. Comparison of regions under certain aspects, e.g., as regards distribution of population, is often preferable to a general treatment of the regions as a whole. Similar considerations apply to a comparison between the situation or industries of two towns or between two physical features such as rivers.

9·2. Other examples in application of what has been learnt about a region may take the form of "problems" or questions making some demands upon the pupil's imagination and reasoning powers, such as to account for the distribution of population within a given region, or to suggest the direction of a country's foreign trade.

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[1] See also G. J. Miller, *Activities in Geography*, McKnight and McKnight, Bloomington, Ill., U.S.A.

Care will be required, however, on the part of the teacher, to prevent the pupil from coming to hasty conclusions based on insufficient knowledge. While such questions as these are set to the abler pupils, the slower pupils may be doing work of a more straightforward and repetitive type; or two pupils, one able and the other less able, may work together at the same problem.

Allocation of Time and Arrangement of a Lesson

10·1. The allocation of time to the different methods available for a regional study and the order of their application will vary greatly, particularly with the region studied, the stage or year of the course, the ability of the pupils, and the interests and individuality of the teacher. This being so, it has been suggested that it is impossible to give a "sample" lesson without producing an impression of simplicity misleading to the inexperienced teacher, or without encouraging a tendency to standardise the order of development of a lesson, which is detrimental to the best teaching. The great majority of the Committee, however, considers that, so long as the reader is warned against regarding it as in any sense a standard to be adhered to, some outline of a lesson should be attempted if this Memorandum is to justify its title.

10·2. The following pages, therefore, describe in some detail the stages in the development of a regional study with the approximate times that may be allowed for them. Two examples are given, one of what may be called the "logical method," the other, the "human approach." The latter alternative, although it is placed after the first, is not to be regarded in any way as a second choice. It is, indeed, a method which is more widely used to-day than the more academic logical method and is especially applicable to teaching in Secondary Modern Schools or in the slower streams of the Grammar Schools. The term "lesson" has been used for the whole study to emphasise the continuity from period to period.

10·3. The following description of a fortnight's lesson of six teaching periods plus two homework periods (of, say, forty-five minutes' and thirty minutes' duration respectively) may be taken to apply to the study by the logical method of a major region by a middle form. It is based largely on the actual practice in Secondary Grammar Schools, as ascertained from replies to a questionnaire, but must be understood to be capable of wide variation in the arrangement of the subject-matter, in the amount to be covered in each period, and in the choice of methods.

10·4. The *first period* might be devoted to introductory exercises of the type discussed in 2·1·1 (p. 103), such as leading questions from the atlas on position, size, relief, hydrography, occupying, perhaps, the first ten minutes, together with suggestions, comparisons, and illustrations given by teacher and textbook, and concluding with the teacher's blackboard summary and sketch maps, and the entry of these into notebooks. Time might be saved by the adoption of team methods, as indicated in § 2·2·1. Many teachers still subordinate individual exercises to oral work in the introductory stages. Ten to fifteen minutes might be given at the end of the period to the teacher's summary and to note-taking; and this applies, of course, to the remaining periods of the lesson also.

10·5. The *second period's* work would follow similar lines, the study being extended to cover climate and vegetation. There would probably be more direct oral teaching in this case, although, if an atlas is available containing sufficiently full climatic data, or if "transparency" maps are used, a considerable part of the work may still be done by individual methods. Pictures, too, may be used as sources. As an alternative, the lesson might take a more practical form, involving the construction of temperature and rainfall graphs by "team" methods. A series of home-made wall maps, too, may be built up by the pupils, perhaps by a special team of half a dozen or so, and this would be completed for other features in subsequent periods. If time is so given to practical work at this stage it would most probably be necessary to postpone the study of the natural vegetation to the next period: and, in any case, some teachers would prefer to do this, especially if the lesson is being used to introduce some fundamental principle of climate study.

10·6. Pictures illustrating, for example, features of relief and structure, or natural vegetation, would be shown, where required, in these two periods, preferably with the help of epidiascope or film-strip projector; or a short film might be shown. Pictures could be used as sources of information; but they could also provide a means of showing the pupils whether their deductions from the map have been correct.

10·7. The first few minutes of every period might begin with a brief recapitulation, possibly in the form of "drill," of the part of the lesson already studied.

10·8. Following these periods a *Homework Period* might be devoted to the learning of notes and relevant portions of the textbook, or, where the teacher believes written or map work to be more valuable, to a set of exercises requiring, perhaps, the filling in of outline maps or the drawing of sketch maps.

10·9. *Period* 3 might begin with a brief test (say ten minutes), either oral or written, on the work of the previous two periods prepared for homework. This would be followed by the study of the human geography of the region, of the controls exercised by relief, soil, and climate, especially on the life of primitive peoples, on agriculture and pastoral life. Here again good use might be made of the introductory type of question, based, perhaps, on a map showing distribution of population; but much will depend upon the pupils' experience in dealing with other regions. Apparent discrepancies in deduced results may point the way, under the guidance of the teacher, to new considerations and lead to the acquirement of a truer conception of geographical relationships. Pictorial illustration will be necessary at this and succeeding stages of the lesson, and the epidiascope method is especially applicable.

10·10. *Period* 4 might be introduced by a brief lecture on the structure of the region, if this has not already been dealt with, but, in any case, the work would include the distribution of minerals and sources of power and thus, or otherwise, lead up to the further study of the distribution of population and of industry. At this stage the pupils' list of sources might well be extended to include newspapers and reference books as well as atlas, textbook and pictures. The teacher's summary might here take the form of an economic sketch map of the region, and this could be copied by the class on transparent paper to be superimposed on the map showing density of population.

10·11. *Period* 5.—The work of the previous period would now lead up to the study of the concentration of population in towns and cities and hence to problems of site and location, which in turn would lead to a study of routes, forming a valuable revision of the topographical features of the region studied in the first period. Much of the work of this lesson would be practical, consisting of the preparation of sketch maps and, possibly, the graphing of statistics of external trade (if the region coincides with a political unit), for the culmination of the period's work might well be the study of the economic position of the region, its relation to its neighbours, and its place in the world of to-day. Thus the work of the lesson unit would be rounded off and brought in full circle back to its starting-point; perhaps, also, preparing the way for the work of the next lesson unit, the study of a neighbouring region.

10·12. A *Homework Period* might here be devoted to reading and learning the work on human geography, or it might take the form of a set of exercises to bring out the main points in the work of the two previous periods. If a double homework period is available here, the work might include a map, or other exercise, as well as learning in preparation for revision in the following lesson.

10·13. *Period* 6.—According to the arrangement of the work we have suggested, Period 6 would appear to be hardly necessary. Many regions, however, present problems of special interest, e.g., irrigation, which might well necessitate the amplification of the study of one or other of the geographical "elements" of the regions mentioned above, and would, in any case, require extra time and attention. Or it may be that the study of the region is well suited for the introduction of some principle of the physical basis of Geography, such as the methods of mountain-building, or the causes of seasonal winds, which might require an extra period in the earlier part of the lesson. Under these circumstances the lesson might easily extend over six periods.

10·14 Again, the sixth period might be devoted to a revision of the work of the previous five periods, with a summing up of the world importance of the region which would take the place of that suggested under Period 5. A ten- or fifteen-minute test might well precede the revision, and is advisable in any case.

10·15. Alternatively to the revision, the test might be followed by the working of exercises, and thus there would be afforded an opportunity for differentiating between the work assigned to the slower and to the faster working pupils. The former would confine themselves to exercises designed to drive home the facts already dealt with, whilst the latter might proceed to a more suggestive train of enquiry in the form of questions proposing comparison and contrasts with regions previously studied, or inviting the consideration of special problems of a more difficult or advanced type. Finally, the extra period might be required for such purposes as a full-period revision test, an excursion or visit of some kind, or a broadcast talk.

10·16. It will be clear that for the study of some regions, e.g., of an undeveloped land inhabited by relatively primitive people, a four-period lesson unit would be ample, possibly even less would be sufficient. On the other hand, to deal adequately with a large unit, such as India, the study of which involves many interesting problems and which is capable of considerable subdivision, might well require more than the six periods indicated above. In this case the study of sub-regions might be carried on by team work as suggested in § 2·2·3. In the case of the regional treatment of the British Isles the simpler, less important regions could be dealt with in a much shorter time, but certain contrasting[1] regions might be selected for a more detailed examination, in which less time would be needed than in the above study for the basic features of relief, climate, etc., but much more for the economic geography.

10·17. Few teachers, probably, would agree with every detail of the lesson as outlined above: but it may be claimed that the scheme does offer one out of several solutions of the problem that confronts every teacher, how to arrange his matter and methods so as to hold the pupil's interest and, at the same time, to ensure that he has obtained an impression, both permanent and correct in detail, of the subject of the lesson. It is in this light that it should be regarded.

10·18. Many teachers to-day hold a view fundamentally different from that on which the above analysis is based. They believe that the study of man's activities should lead towards and not "back to" the appreciation of the physical setting: that the pupil's curiosity and interest should first be stimulated by the discussion of questions and problems arising out of a preliminary view of the human geography of the region, such as might be given by a film or a set of pictures. Such a conception would require extensive modifications in the arrangement of the lesson periods as outlined above, and in the following paragraphs an attempt is made to show the lines which such modifications might follow.

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[1] Regions contrasting with one another, to give a balanced picture, and those contrasting with the pupils' home region.

10·19. The *first period* might be begun with a short test, oral or written, revising two or three relevant points from the previous lesson unit and suggesting a problem or problems leading on to the present topic. The teacher should then give a short, clear statement of what is to be studied, and suggest the important questions to be solved. Special mention should be made of the relation of the geography of the region to its home life. The function of this introduction is to arouse curiosity and interest and to afford some vision of the work to be done. A film may then be shown, or a film-strip, or a set of six or seven epidiascope pictures, together with two or three maps of distributions such as those of crops or population, followed by a series of questions. If no projector is available, the teacher may divide the class into groups, giving each group a picture or map with questions attached. These will be passed on to the next group at short intervals. When the questions have been answered, there will follow a general co-ordination of the results and an intensive atlas study indicating the precise position of the subjects of the pictures and the extent of the areas of which they are typical. The lesson will end with a blackboard summary of the character and distribution of the human activities brought out by the picture studies and the entry of this into the pupils' notebooks.

10·20. This method of considering small typical and particular details of the human life, activity and settlement of a region will be found very stimulating. To take one farm or one village or one mine or one view in detail helps the understanding of the reality of the regional geography in a way which is impossible in a more generalised study.

10·21. The *second period* might proceed to the discussion of the relations between the human activities studied in Period 1, and their immediate physical environment, relief and climate, concluding with a summary of these relations, preferably in map form.

10·22. *Periods* 3 *and* 4 might complete the building up of the human geography of the region from particular instances of human activity and environment, together with its physical connections, while *Periods* 5 *and* 6 might deal with the synthesis of previous results and the treatment of the region as a whole. The position and size of the region, its physical and biological geography would be briefly reviewed and man's occupations summarised. A study of human settlements and inter-communications, and of the relation of the region to the rest of the world would follow. The lesson might conclude, if time permits, with the showing of another film or set of pictures and, finally, with a discussion of how far the problems proposed in Period 1 have been solved and of what else might be done to augment the present study.

Revision

11·1. One of the most important problems that confront the teacher in any subject, and not least in Geography, is that of providing in his course adequate time for revision. Every teacher realises that without periodic and systematic revision his pupils will fail to retain much of what they have learned, and that the value of his teaching is thereby reduced. Revision offers an opportunity of emphasising important points, of clarifying the pupil's knowledge, and above all of presenting to him in a compact and logical form a comprehensive view of what has been taught.

11·2. The necessity for revision, then, may be accepted as an axiom, but the methods will, of course, vary according to the ideas of the individual teacher. Some teachers will prefer to take their revision lessons *en bloc*, in the last weeks of either the year's or the term's course, according as annual or terminal examinations are the practice in their schools, revision thus coming immediately before the school examinations. Others prefer to revise as they go along, making, say, every fourth lesson a revision lesson; although the spacing of the revision lessons will, as a rule, be somewhat less regular than this, since it depends largely on the subject in hand. Probably a combination of the two methods is the most effective, i.e., frequent revision lessons during the term, coupled with a *short* but *intensive* revision course at the end of each school term or of the school year.

11·3. Some teachers prefer to relegate revision mainly to the homework periods; that is to say, to make it largely an individual affair. In carrying out this task by himself the pupil will have much to guide him. He is already familiar with his textbook and has his notes and summaries at hand to direct him to the important topics, and, if he is recommended to use outside sources, he will have been introduced to these already and will know what to look for. It will, no doubt, be necessary for the teacher to prescribe the portion to be revised and to institute some form of short test to ensure that the work has been done effectively.

11·4. But the practice of revision in class should not be excluded. Here, again, individual methods may be used, the pupils working under the eye of the teacher, who is there to direct and solve any difficulties that may arise. On the other hand, periods available for class revision may, as suggested above, be entirely devoted to testing the pupils' knowledge of the portion of the course prescribed for homework, either by short questions or by requiring the class to produce summaries of what they have done, especially in the form of maps.

11·5. Some teachers prefer to use these class revision periods as "lecture" periods, presenting in a compact form and with as much detail as time will allow a complete picture of a section of their subject. Frequent questions should punctuate any such presentation of the subject. A method sometimes found effective is to call up the pupils in turn and make them expound for the benefit of their fellows, with the aid of wall maps and blackboard, some portion of the work they have been doing.

11·6. Most teachers will agree that in revision work it is advisable, so far as is possible, to present the material in a different fashion from that in which it was originally put forward: for in this way interest is maintained and the unintelligent memorising of notes avoided. The building up of sketch-map summaries, the use of visual aids and of sets of revision questions can all provide new forms of activity with the same material.

11·7. At the end of the term or of the school year a detailed plan should be made for a series of revision lessons, in order to ensure that the whole ground is covered. It may be added, in conclusion, that, however great the temptation may be to complete the course, the teacher is well advised to omit something from it rather than to neglect revision. It is better to deal thoroughly and effectively with, say, three-quarters of the course than to give a hasty treatment to the whole, only to find in the end that of little, if any part of it, has the pupil a sound and satisfactory knowledge.

Out-door Work

12·1·1. "Geography is essentially an open-air subject" is a statement made by one of the Committee's correspondents, and it is true to say that in no other subject of the school curriculum does the "out-of-doors" world loom so largely as it does in Geography. Biology, no doubt, is equally interested in out-door life, but its experiments can be, and are, mainly carried out in the laboratory. The only true geographical laboratory is the world outside the classroom. The attempt, therefore, to confine the teaching of Geography, particularly in its early stages, within four walls, however excellent methods and equipment may be, often leads, if not to failure, at least to a lack of reality which is a serious hindrance to the formation of true geographical concepts.

12·1·2. This is not to say that there are no practical difficulties in the way of out-door work. In a town school little can be done in the immediate neighbourhood of the school, and excursions to some distance are necessary, entailing expenditure both of time and money: and even in schools well situated in country districts the time taken to do really effective out-door work is often greater than is obtainable under ordinary time-table conditions. The demands of games, societies, and other school activities make it difficult to find the time even to do such work out of school hours, and examination requirements in upper forms do not permit of the more leisurely study of geographical phenomena in the open air. Again, the size of classes often prevents the teacher from exercising sufficient supervision to ensure that every pupil is receiving the full benefit from a lesson out of doors: whilst our variable climate makes it almost impossible to fit out-door lessons into their appropriate place in the syllabus.

12·1·3. Even in city schools, however, these difficulties have, in fact, been overcome and effective out-door work done. In some cases a school camp has been formed for the special study, by a section of the boys, of the Geography of a region at a distance from the school[1]; in another instance boys have made observations of the types of traffic along main roads leading to the docks of a seaport; in other cases boys have been taken to the outskirts of the town for out-door work; and visits to docks, factories, and so on are common.

12·1·4. If the field study is to be regarded as basic in

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[1] A detailed account of such a camp will be found in Chapter VII.

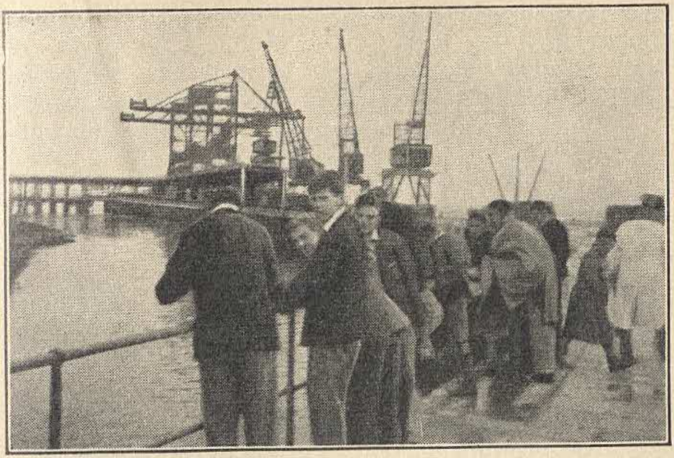

FIG. 28 – OUTDOOR WORK : STUDYING THE TRANSHIPMENT OF CARS FOR EXPORT AT FORD'S MOTOR WORKS, DAGENHAM

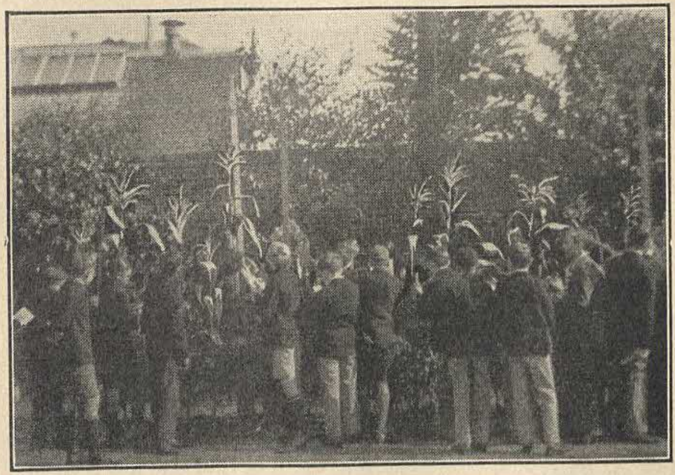

FIG. 29 – OUTDOOR WORK : THIRD-FORM BOYS AT A LONDON SCHOOL MEASURING THEIR MAIZE CROP BEFORE EATING IT (OCTOBER 1934)

any course of school Geography, three conditions must be observed :

(a) Adequate allowance must be made for such work in the time-table. It must not be relegated to the status of a mere extra, to be taken up at an odd week-end or during holidays by a specially conscientious master for the benefit of a few volunteers. The work done in the classroom must be built up on the work done outside it, and all members of the form must be involved in the normal way.

(b) The geography specialist must make himself fully aware of the educational possibilities inherent in the school region. It should be recognised, however, that the acquisition of such a mental equipment may well entail long and arduous research. One way in which the burden of this could be lightened, especially for the young teacher, would be by the setting up of regional study groups whose members would be willing to pool their local knowledge. It would be of material assistance if the findings of such groups could be published, the cost of publication being borne by the authorities.

(c) The technique of the geographical excursion must be worked out. In general it can be stated emphatically that it is not enough for an excursion party merely to be lectured to or given notes in the hope that "somewhere or somehow, something will stick." Such haphazard treatment conduces to passivity. If all its members are to take a mentally active part in the proceedings, the group must be set a clear problem or series of problems, and the findings first discussed, individually or collectively, and then recorded. Such findings are likely to suggest further lines of enquiry. In all this the rôle of the teacher should be that of the fellow seeker after truth rather than that of the formidable and discouraging person who knows all the answers.

12·1·5. Among the most important functions of outdoor work are to correlate classroom study, particularly of maps, diagrams, and models, with the real things represented therein, and to investigate at first hand the Geography of the home region of the pupils.

12·1·6. As regards the first of these objects, in map-reading, for example, no amount of imagination applied to O.S. or other symbols can equal in value a comparative study of map and view, where the component elements in a landscape are identified from a convenient view-point and then located on the map spread out in front of the view, or where the intriguing origin of a plume of smoke rising from behind the shoulder of a hill may be revealed by the map which knows no such obstruction. Fortunate is the school which is situated on the side of a hill with a wide plain or valley spread out in front of it: but, though such a site may be rare, the school neighbourhood which cannot provide some view-point, even if it be but an upper window, is, perhaps, equally rare.

12·1·7. Although a site suitable for the study of contours is less readily available in town schools, a local park or even a sloping playground may often be used to follow the course of a level line or, adopting the practice preferred by some teachers, to recognise ground above and below a given level.

Examples of Observational Work

12·2·1. There are few schools, even in towns, where, by the exercise of a little ingenuity on the part of the teacher, some simple forms of observational work cannot be carried on out of doors. In most neighbourhoods any steep unpaved road will, after heavy rain, furnish examples of the work of water in motion, while deposition in a flood plain may often be observed in miniature in the gutter at the side of a road. Geological structure, too, may be studied from quarry sections or from other exposures, e.g., a deep excavation for such purposes as house building or well sinking; and local building material can almost invariably be relied upon to form the basis of at least one simple observational lesson. In some favoured districts land forms and the effect of ice in the past may be observed in the neighbourhood of the school.

12·2·2. Again, there are few schools, whether in town or country, that cannot afford to establish a simple meteorological station, provided at least with thermometer, barometer, and rain-gauge, where weather phenomena may be observed and a diary kept. In this way a detailed account of the year's weather can be obtained, and it is interesting to compare results with the day-to-day observations to be found in local or other official records. The interruptions caused by week-ends and holidays present a difficulty, but it will generally be possible to find pupils living near the school who will undertake to make the necessary holiday readings for a few days in turn.

12·2·3. During the term, groups of two or three boys can be detailed to make the observations, each group holding office for, say, a week, a fortnight, or a month, and one pupil in each group being made responsible for the record. Since little time is required for these observations, they can be made out of school hours. Previous explanation in the classroom will be required and constant checking of results, especially in the earlier stages, is necessary, or some extraordinary weather will be recorded. Mean weekly or monthly temperatures and rainfall can be worked out, and though the value of such records is not, as a rule, very great, this sort of experience will bring actuality into the climatological work which will be done later in the higher forms. It is, indeed, very desirable that every pupil should, at some period or other of the school course, take a series of observations, be it only for a week.

12·2·4. The value of weather records will be greatly increased if local climatic conditions can be correlated in some way with the use which man makes of them. It would be useful if pupils knew the relation of their local climate to such matters as the local farmers' year, the direction of the runways of the local airport, and the temperature conditions under which people will normally wear, say, heavy overcoats, light overcoats, or flannels.

12·2·5. Simple astronomical observations are also possible, such as the determination of the sun's midday altitude, the results being compared with those given in some standard publication such as *Whitaker's Almanack*. The latitude of the school can also be determined within a small degree of error, with no more complicated apparatus than an upright pole and a measuring tape, the declination, of course, being given. But such observations as these necessitate the Geography lessons being in progress at noon, which will not necessarily be the case.

12·2·6. The value of practical surveying, involving the use of the chain, the prismatic compass, or of more elaborate instruments, is a matter of some controversy. Many experienced teachers consider it to be outside the scope of the Geography course, others feel it to be important that boys should be instructed in the elementary principles underlying the construction of maps in the field. Amongst work of this kind that is done in schools may be mentioned the use of the prismatic compass with pace or tape traverse, plane tabling, clinometer reading, levelling, and simple contouring.

12·2·7. On the whole, if surveying be attempted, or astronomical observations other than those of the very simplest type, it would seem best to concentrate them into the last few weeks of the summer term, when deviations from the ordinary school time-table may more easily be arranged.

Soil Study

12·3·1. Although in schools a great deal of attention is paid to the influence of climate, it is hardly an exaggeration to say that the almost equally important influence of soil has been much neglected. In the past many teachers have regarded Soil Study as too difficult for schools: and, where examination syllabuses have included the subject, the information required has been too often memorised from a textbook, a large proportion of School Certificate candidates having been unable to identify the soils of the fields near their homes. Formerly the omission of Soil Study from the curriculum might have been excused on the ground that there was no generally accepted system of soil classification, but the simple classification given in § 12·3·3 below may now be taken as a convenient standard for a school course: and at the present time the field study of soils is at least as important in practical school Geography as the scientific observation of the weather. There is now a considerable number of publications from which teachers may acquire a knowledge of the rudiments of soil science[1] and there are simple but satisfactory methods of describing and mapping soils for those who are prepared to initiate soil observations by their pupils.

12·3·2. Soils, then, should be studied on the ground, and the observations should be recorded on either the six-inch or the two-and-a-half-inch maps of the Ordnance Survey. As such study involves the presence of the observer in the fields, superficial methods, such as those which could be used in land utilisation survey where ploughland could be identified without walking on it, are useless. Not more than two pupils at a time should enter a cultivated field and then only after permission has been granted by the farmer. A method of field study which has proved successful is *farm adoption*, by which close personal relationships are established between a school and a

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[1] Such as:—*The Soil* by A. D. Hall, revised by G. W. Robinson, 5th Ed., John Murray, 9/-. *The Study of the Soil in the field*, (2nd Ed.) by G. R. Clarke, Clarendon Press, 6/-. *Good Soil*, S.G. Brade-Birks, English Universities Press, 3/6.

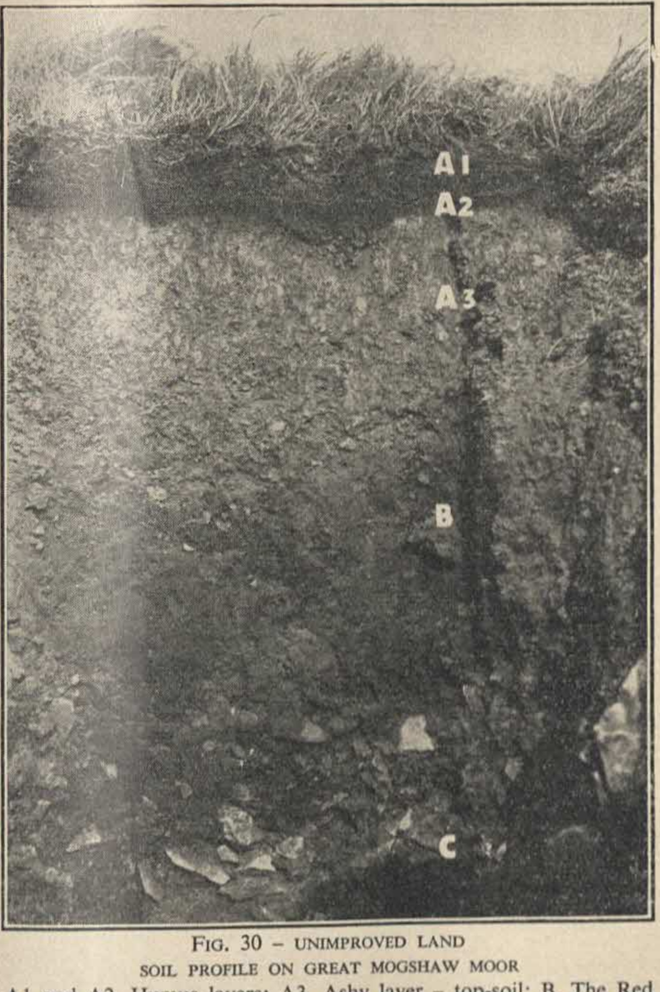

FIG. 30 – UNIMPROVED LAND

SOIL PROFILE ON GREAT MOGSHAW MOOR

A1 and A2, Humus layers; A3, Ashy layer – top-soil; B, The Red Horizons – sub-soil; C, Parent material – limestone rock. The depth of the trench shown in the photograph is about 3 feet.

(From the Young Farmers' Club Booklet on *Soil Fertility* by courtesy of Mr. A. S. McWilliam and Messrs. Evans Brothers, Limited.)

particular farm. It is these personal relationships which make all the difference to the successful study of farm soils. Large classes may easily damage crops and class demonstrations should be confined to marginal areas of rough pasture, open moor or woodland, where digging and boring with a soil auger will do no harm. An account of how this kind of study can be carried out without disturbing the work of the farm is contained in the excellent booklet "Soil Fertility,"[1]

12·3·3. In Great Britain soils are generally classified according to their texture. This system is based on a field assessment of texture by handling. Soils are graded as clay, silt, fine sand, coarse sand, fine loam, medium loam, and heavy loam, but some degree of skill is required to place each soil in its correct category. With the free drainage and the relatively high rainfall in this country the soils tend to be of the podsolic type, especially where they have been undisturbed for generations.[2] In open moorland digging will reveal complete soil profiles, but in cultivated areas the manuring, liming and cropping so change the soil's natural properties that classification is sometimes difficult. Systematic soil surveys are beyond the scope of school work but a simplified method gives useful information and stresses the importance of looking below the top soil. Useful work, too, may be done in conjunction with the biology course to show the correlation of soil conditions with the natural herbage and the farm crops.

Excursions

12·4·1. The opportunities for systematic out-door work are, in the average Secondary School, strictly limited. But most teachers can find time for one or two whole-day excursions during the summer term, while others prefer to conduct an Easter or summer vacation class in some suitable locality where concrete illustrations of many of the principles taught in class can be found.[1] Indeed, the whole-day excursion seems to be a regular part of the Geography course in many schools, some teachers preferring to take all their classes at one time on a single excursion, while others prefer to conduct a number of outings, confining each one to a group of two or three forms. The former plan has the drawback that it is difficult to suit the work done to the varying capacities of pupils at different stages of the course, whilst the large number of pupils is an obvious disadvantage also. The latter, on the other hand, involves more frequent interference either with the school time-table or with games and other school activities, although it is not impossible to come to an arrangement with the games master when an excursion is being planned.

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[1] Young Farmers Club Booklet No. 12, published by Evans Brothers. Ltd. at 2/-.

[2] It is advisable that something should be known of the major European soil types, such as podsols, forest earths, black earths or chernozems, which are characteristic of the great climatic zones. Specimens and pictures of each type should be collected for reference.

12·4·2. Such excursions need careful organisation, planning of the route, arrangements for catering, etc. In any case, it is essential for the leader to go over the ground beforehand, with the double object of ensuring that the proposed route can be covered in the time at his disposal (it is safer to make a strictly conservative estimate), and of determining to what kind of work the country to be visited lends itself.

12·4·3. Two specimen schemes for excursions described by the Committee's correspondents are appended. They will serve sufficiently well as models of what can be done, of the way in which preparation can be made for the excursion, and of the manner in which the results can be used. (But see also Chapter VII.)

12·4·4. The first is from a Cumberland school within easy reach of a district rich in opportunities for the study of geographical phenomena. The correspondent writes:

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[1] See Chapter VII.

"Out-door Geography occupies an important place in our scheme in the form of 'Geography Walks.'

These take place in the summer term.

Form ii have half a day, Forms iii, iv, v, and Examination Forms a full day.

The bus is used to convey the children to the Lake District and then the walk begins.

1. Adequate preparation is made:
   (*a*) A lesson on the area is given before the excursion.
   (*b*) Each pupil is provided with a cyclostyled map and notes.[1]
2. Use is made of the walk later; e.g. Andean peaks are compared with Skiddaw, etc.
3. Some definite and important points stressed for each walk are:

Form ii.—Contour lines. Setting of map.

Form iii.—The relation of topography to Human Geography.

Form iv.—Relief features due to glaciation.

Form v. { Sections and inter-visibility exercises.
Survey of rock-types.

Examination Forms.—General recapitulation and correlation of previous facts."

12·4·5. The second is from a school situated in a large town in Leicestershire:

"Our school is in the centre of a large town bordered on two sides by main roads. Open-air teaching is practically impossible near the school, so that in our case it means a complete day out of the school buildings and is consequently a rare event. A well-known spot in the country is chosen for the first journey. The second journey is usually taken to a different district on the other side of the county. But the second is usually a whole year after the first.

The main geographical objects are (1) contours and land-forms generally, (2) work of a stream, (3) (later) comparison of the different sides of the county, very striking in our case. Each student has cyclostyled maps of the routes, usually one inch to the mile, and always one of the particular district to be visited, six inches to the mile where possible. In addition Ordnance Survey maps are carried. Special points on the route are chosen as stopping places, and at each some particular geographical fact is illustrated.

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[1] Most teachers would disapprove of the pupils being provided with previously prepared notes.

On return to school we go over the journey again, using large-scale models of Leicestershire (see illustration, p. 107), and finally each boy writes up an account of the day. These accounts are marked and any points requiring further explanation are attended to." (See also Chapter VII.)

Local Geography

13·1. It will not be difficult to see that methods to be adopted in the study of the Home Region will differ widely from those outlined above for the study of a "major" region. To begin with, the teacher must build on very different foundations: academic knowledge yields to practical experience, and concepts arrived at through careful guidance on the part of the teacher give place to those derived from an environment familiar to the pupil from his earliest years.

13·2. In building up the new conception of the Home Region as an entity and not as a mere bundle of unco-ordinated knowledge, the work must be based on the pupil's experience on the one hand and on direct observation on the other. The former will vary considerably with the individual pupil, depending not only on his inclination and on his social environment, but also on the situation of his home within the region. Hence, clearly, the "team" method, in which each pupil brings his personal experience and opportunities for local observation as a contribution to the synthesis of the whole, is exceedingly valuable. Much remains to be done by the teacher, however, to direct and co-ordinate the work, and collective observation by the class as a whole cannot be dispensed with.

13·3. The study of the Home Region in the early part of the course includes much simple observational work suitable to the Preliminary Stage, examples of which have been given above. The exact nature of the work will obviously be determined mainly by the situation of the school, whether it is in a rural area, for example, or in a suburban or purely urban area. The study of a seaport again, or a residential country town, or an industrial or mining centre, will each require its own method of approach. In the case of a purely rural area or small country town, the course may well begin with a determination of the nucleus of the home town or village and of the conditions of its site, examined on the spot. The physical aspect of the district, including relief, structure and drainage, will also be studied at an early stage. Rock outcrops will be examined and streams, as far as possible, traced to their sources. The out-door work will, at every stage, be closely co-ordinated with the study of the 6-inch O.S. map.

13·4. The colour and character of the soil, whether sandy or containing flints, for example, should be noted, and specimens collected, tested, and classified. If time can be spared for a detailed survey of the soils, the preparation of a soil map of the region is recommended. This is usually beyond the scope of the Preliminary Stage, but it has been successfully carried out by middle form pupils of a school near London.

13·5. The climate of the region may be studied from the results of the school meteorological observations taken over a period of years, correlated with those of other local stations so far as these exist, and compared with the statistics for wider areas, obtained from records of the daily weather reports published in some of the leading newspapers. The results may be represented graphically and instructive comparisons made.

13·6. The study of the vegetation of the region, both natural and cultivated, gives an excellent opportunity for systematic survey work. A pupil may be given charge over a number of fields, though it is advisable to make a preliminary survey with the whole class. Farmers are usually willing to answer questions, and a circular may be drafted to be submitted to farmers by pupils making enquiries.

13·7. A simple land utilisation survey of this kind, carried out by junior pupils, may include a survey of flocks, poultry, etc. The local distribution of crops and domestic animals, thus determined, may be compared with the distribution for the whole county or the whole country by means of a series of parallel maps, or otherwise.[1] Again, along with the land utilisation survey, a survey of field boundaries can easily be made. Another interesting out-door exercise is to "beat the bounds"of a parish or small urban district, noting the character of the boundaries and, as far as possible, accounting for them. If nature-study or botany is taken in the school, the detailed study of the distribution of trees and plants may be taken up by these departments, but apart from the recording of such obvious facts as the predominant kinds of trees, etc., the work is beyond the scope of the Geography course.

13·8. Most of the work outlined above, such as the study by direct observation of drainage, soils, land utilisation, etc., cannot be carried out in urban schools. Nevertheless, with the aid of large-scale maps, the relief of an urban district can be brought out, its geological structure can be at least partially determined by the examination of excavations made for various purposes, and the courses of streams, though now often covered in as sewers, can frequently be traced. In towns, however, the economic and human aspects of the subject will offer more abundant opportunities for out-door observation. Minor surveys can be made by the junior pupils themselves, such as studies in the distribution of the different kinds of shops, of old buildings, of places of worship or of recreation, or, a task after the small boy's own heart, a survey of filling stations. The different types of houses in the area and their distribution can be examined[1] (and here team work is essential), and in some cases the relation of the various types to relief and geological structure can be determined.

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[1] The necessary statistics for the wider area may be obtained from the publications of the Ministry of Agriculture and Fisheries.

13·9. Visits to local undertakings should be made from time to time. Such visits serve not only to verify facts concerning the sites of mills and works and the causes of their foundation, but also to give the pupils first-hand knowledge of materials, processes, and organisation. Railway stations, especially goods stations, should also be visited and the main lines of communication by road and railway observed.

13·10. The above suggestions by no means exhaust the list of possible topics suitable for inclusion in a course of Local Geography at the Preliminary Stage. In some cases, for example, the study of a local industry of predominant importance may form the nucleus of the course. A few of those mentioned by our correspondents are the herring fishing and curing industries of Great Yarmouth, the wool textile industries of Bradford, and the pottery and iron and steel industries of North Staffs.

13·11. Out-of-door observations should, in general, be closely correlated with class work or with indoor work carried on by the School Geographical Society. In class, the results obtained can be embodied in maps, affording excellent training in map-work for the younger pupils, and notes taken in the field can be entered up in orderly fashion and conclusions deduced from them. Again, it is highly desirable that a relief model of the region should be constructed, preferably based on the 6-inch O.S. map. The vertical exaggeration should not be great, so that the model gives a reasonably true representation of the relief of the district.

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[1] A scheme for the classification of house types in a London borough, used in a survey by a local school, will be found in Chapter VII.

13·12. In a region of varied topography examples of different types of land forms may be modelled, and thus the teacher will be provided with some useful material for teaching the physical bases of Geography. The methods of construction of models will be discussed in the next chapter.

13·13. Interest in Local Geography will be stimulated by the occasional exhibition of the records, maps, and models made by the pupils, together with samples of local products, etc., as described fully in Chapter VII, where further notes on Local Studies will be found.

Contours

14·1. The teaching of contour-map reading is generally regarded as one of the most difficult problems the Geography teacher has to face. The ability to visualise the solid reality from the two-dimensional map often seems incapable of attainment by a majority of the class. But much of this apparent difficulty is probably due to a wrong method of approach. Just as modern experiments in teaching children to read have greatly facilitated and simplified the process of reading, so it is possible that experiment may discover a method by which contour-map reading may be made as simple a process for the average pupil as reading a book. There is opportunity for educational research in this direction.

14·2. *Contour as Boundary.* There are two possible methods of approaching the subject in practice, arising from two viewpoints as to the nature of a contour itself. The more usual and more academic definition of a contour as a boundary between "regions" at different levels gives rise, on the one hand, to a treatment based on a model, in which case the work is done in the Geography Room, by submergence of the model in a tank, for instance. On the other hand the basis may be the map itself and the contours developed from a consideration of spot heights or spot depths. In either case this conception of a contour as a boundary between areas is useful when sections are drawn at a later stage.

14·3. *Contour as Locus or Path.* A contour may also be defined, however, as a locus or path. In this case the preliminary treatment should be out-of-doors. A pupil can attempt to walk along a slope without either going up or down, corrected by his class mates from suitable observation points. He then associates the contour with the ground itself and it is not merely something on a model or a map. To obtain a rough contour a number of pupils can be lined up on a slope at the same level, determined by the eye or by some simple apparatus formed from a lath and a spirit level. If there are enough pupils, two or three adjacent contours can be "lined out" in this way, the level of the pupils' feet representing that of the actual contour; and, if a sufficient variety of slopes be available, the closeness of neighbouring contours may be related to the steepness of the slope. This approach is more elementary and direct than that from the "boundary" definition and the idea is readily grasped by young pupils; but it requires conveniently adjacent sloping ground, which is not always available, particularly in town schools. Since, however, the preliminary outdoor work may be confined to a single lesson, a short excursion to suitable ground may well be justified. Such an out-door approach will be followed up by indoor work on a model as described below.

14·4. *Models.* It is highly probable that three-dimensional space is most effectively experienced in practical work when the physical pressure of the fingers is called upon to reinforce the sense of sight. Whenever facilities permit, pupils should themselves model the commoner types of land form in plasticine. When a model is required for contour work it need not be large; a base, say, two feet by one foot will be sufficient; but if it is large enough a considerable variety of land forms may be shown on the same model. Several models may be made, however, to illustrate different land forms, and work on these, by the methods described below, could be carried on by the different members of a class simultaneously. Although plasticine is the most suitable material, clay may also be used, but in the latter case the model should be painted, as the clay surface is apt to powder easily. The model may be regarded as representing an island, so that the lower edge forms the sea-level contour.

14·5. *Immersion method.* A useful method of showing contours as boundaries is by the immersion method above referred to. Water is run into an observation tank to a succession of depths shown by a scale in or on the side of the tank. The contours shown by the water levels may be traced on the model by means of pins or with a stylus. The tank should then be placed on the floor so that the pupils in turn can, by looking down on the model, sketch the contours in plan. There is opportunity for team work here, each member of a team sketching a particular contour on a team map. The best team map might be pinned up.

14·6. *Locus-tracing method.* When a contour is regarded as a locus, the obvious method of tracing one on a model is by means of a point fixed at a particular level above the base of the model, representing a given number of feet above sea level. Any sharp pointed instrument of sufficient length will serve, even a fully extended pair of dividers stiffened at the joint. This is clamped rigidly to an upright on a movable stand, for example an ordinary retort stand, so that, by moving the stand about, the point may be made to trace a contour on the model.[1] The handy Geography teacher can no doubt design some simple and convenient apparatus, but the above somewhat rough and ready method has been used with good results. In this case the model must not be too large or the pointer would be too long for rigidity, as the base of the stand must be kept clear of that of the model. It may not be possible to complete every contour in this way, but the pupils may each in turn trace out a portion of the contour, which may be a broken, not necessarily a continuous line in the first instance. The mere act of tracing, with the necessity of pushing in the point in crossing a valley or drawing it out on crossing a spur, will, in most cases, by its combination of hand and eye activity, bring home to the pupil's mind the properties of contours far more easily and correctly than can any verbal description or argument. When the model has been completely contoured at, say, intervals of one inch, the contours may be filled in with coloured thread or wool. The model should then be placed on the floor and sketched by the pupils as in the immersion method described above.

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[1] See Fig. 31.

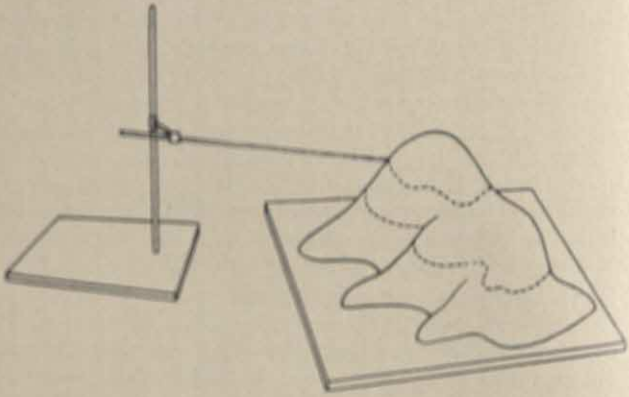

FIG. 31 – TRACING A CONTOUR ON A MODEL

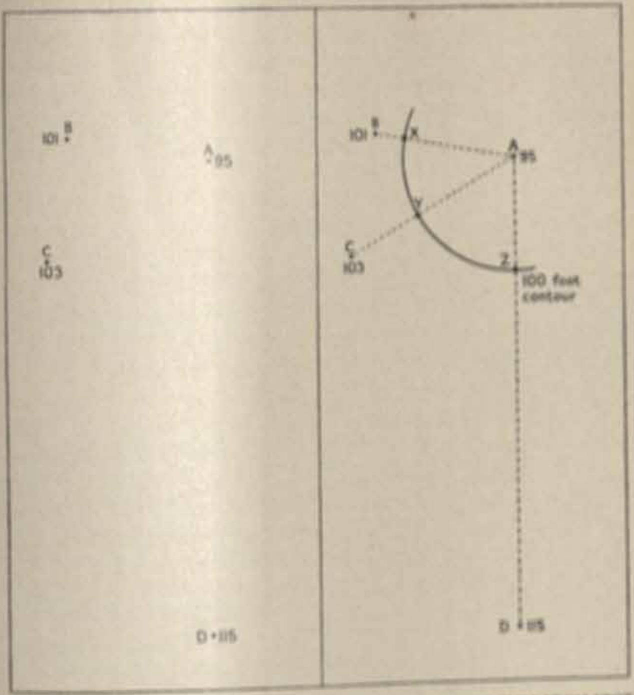

FIG. 32 – DIAGRAM TO ILLUSTRATE THE DRAWING OF CONTOURS FROM SPOT HEIGHTS

If A, B, C, and D are " spot " heights 95 feet, 101 feet, 103 feet, and 115 feet respectively above sea-level, the 100-foot contour may be constructed by dividing the distances between A and the other points in proportion to the number of feet each point is above or below 100 feet. Measured from A, the estimated positions of 100-foot points are found at the point X, $\frac{5}{6}$ of the distance A-B, at the point Y, $\frac{5}{8}$ of the distance A-C, and at the point Z, $\frac{5}{20}$ of the distance A-D. The 100-foot contour is obtained by connecting the points X Y, and Z.

14·7. Air photographs, together with perspective drawings on which contours have been traced, can be very useful aids to the interpretation of contour maps. The latter may be constructed by the teacher, but examples of both may usually be found in the several excellent series of map-work exercise books now published.

14·8. When, by some such methods as those described above, the pupil has obtained a clear idea of what a contour is, of how a slope is shown, and of the representation of some of the simpler land forms such as valley, ridge, and col, he may proceed to a variety of contour-map exercises. In particular he may practise the interpolation of contours between spot heights, both out of doors and to scale in in the classroom. Interpolation work of this kind should, indeed, be regarded as necessary, seeing that it introduces a method which is applicable to the construction of equidistribution lines on maps of many types: but it is not an essential part of elementary work on contours with young pupils and may be posponed to a later stage.

14·9. Some teachers prefer to use interpolation between spot heights as the first introduction to contours. A satisfactory method is to print out a sheet containing a few spot heights in the immediate neighbourhood of the school and to confine attention to the drawing of some particular contour. Occasionally the school playground or playing field offers a suitable area for the measurement of height-differences by means of a simple water-level. The amount of time allotted to such preliminary practical work in the open air depends on the ability of the class, but it is generally possible to make even the more backward pupils acquainted with the nature of spot heights in two lesson-periods.

14·10. The point at which the work on contours actually begins is *after* the spot heights have been plotted. It is then necessary to explain in minute detail the method of drawing *one* contour and, when this is grasped by all the class, similar examples may be worked out for the other contours at definite intervals from the first. It is essential that the meaning of contours should be known before any attempt is made to use contoured maps. Careless thinking and inaccurate expression must not be tolerated.

14·11. *Soundings.* As an alternative or supplementary method to the use of spot heights, "spot depths" or soundings may be used, especially in the case of schools near a seaport. When the method of interpolation has been grasped, pupils may be required to shade, on a duplicate chart, the channel through which a vessel of given draught can be navigated. In this way the sea contour of, say, 20 ft. can be regarded as the junction of two areas of which one is above this depth and one below it. A consideration of the possible channels for vessels of different draughts may serve as a starting point for work on layer tinting.

14·12. *Gradients.* When the spot height or sounding method is followed, the class should construct several sets of contours by interpolation before undertaking the analysis of slopes and the construction of sections, from which the mathematical treatment of gradients would be developed. But there is no need to wait for this before an elementary notion of gradient is introduced. Gradients can be studied out of doors and calculated by means of a simple levelling instrument, or, in the case of a built-up slope of standard bricks, merely by counting numbers of bricks, the relative dimensions of each being known. The idea of gradients may be obtained by correlation with the pupils' own physical experience of the relative difficulty of ascending slopes.

14·13. *Sections.* The logical point at which construction of sections should be introduced is immeduately after the study of contours. But it is not absolutely necessary to deal with the subject at this stage with young pupils, and some teachers prefer to postpone it until, perhaps, the second year. Sufficient facility in the reading of contour maps for the work of the first year may be obtained from the use of models as described above. Many teachers, however, will prefer to pass from contours to sections. A suitable map to introduce section drawing is the 6-inch[1] O.S. map, preferably that of the school neighbourhood if the relief is sufficiently varied, for here the sections may be constructed with little, if any, exaggeration of the vertical scale and the contours are easy to read. For the actual drawing of a section by the pupils squared paper will of course be used and transparent paper of this kind has obvious advantages. The points of the section may be taken off along the line of section on a piece of straight-edged paper and transferred to a scale previously prepared by the pupils, a method preferable to using printed scales at the bottom or side of the contoured plan. If transparent paper is used, however, on which axes have already been drawn and marked to scale, the section may be constructed *in situ* without the necessity of transfer from one base to another with the consequent loss of accuracy. It is necessary to make the class realise that the vertical scale adopted in section drawing is seldom the same as the horizontal scale. Vertical scale exaggeration may be demonstrated by comparing a section drawn with this exaggeration with the same section drawn to equal horizontal and vertical scales.

14·14. As soon as the class is able to draw sections from contoured plans, an attempt should be made to analyse uniform, concave, and convex slopes, and the form of a simple escarpment. This can be done in one lesson-period.

14·15. Either before or after dealing with the construction of sections attention should be paid to the arrangement of contours in a valley, and in a spur; but if the locus method has been adopted these forms will already have been studied from the model, as described above. A variety of types of land form should be dealt with and, at every stage, exercises should be worked to establish the relationship between actual scenery and its representation on the map. Some of these exercises might take the form of

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[1] The 2½-inch map is preferable in cases where the contour interval on the 6-inch map has been increased to 100ft.

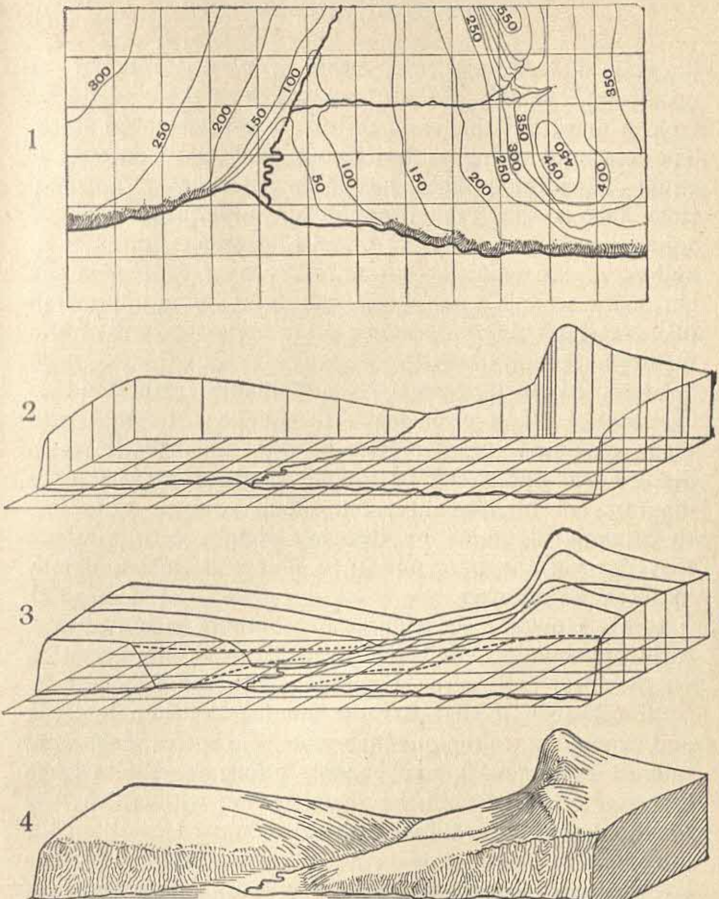

FIG. 33 – THE CONSTRUCTION OF A BLOCK DIAGRAM

Stage 1, Map covered with network of reference lines; Stage 2, Reference lines re-drawn on "slewed" block: sea coast drawn in on this. Sections along edges of block also drawn in. Stage 3, Sections completed along horizontal reference lines (perpendiculars omitted for clearness). Profiles along edges of cliffs drawn in. Stage 4, Block completed: all construction lines removed.

(From *A Systematic Geography of World Relations* by courtesy of the author, Margaret S. Willis.)

drawing a contoured map from a photograph, or of producing a sketch of some view which might be deduced from a map; but this is work for a more advanced stage. The essential thing is to secure that the concept of equal distribution lines has been thoroughly grasped, since this is the foundation of all subsequent work of equal distribution maps of climate, products, population and so on. In making contour maps layer tinting on the chromatic scale is a useful aid both in giving an impression of increasing height and in acquiring understanding of and facility in section drawing.

14·16. *Block Diagrams.* As a valuable further aid to "seeing solid", contour maps should be correlated with block diagrams, and this may be done at an early stage. Sixth Form pupils can be taught to produce from maps diagrams of high quality; but much younger boys like to attempt diagrams by drawing rough sections along the edges of the base and then filling in further details by freehand drawing.

14·17. However the subject of contours is introduced, early opportunity should be given for their interpretation on the local O.S. maps, beginning with the 6-inch scale, or the 2½-inch if that has the smaller contour interval, and proceeding to the one-inch scale. This gives reality and interest to the work and enables pupils more clearly to associate contours with the actual terrain with which they are familiar. The local maps may also be used as a basis for introductory exercises in layer colouring, so that, with a knowledge of reality behind the colours, the usual misconceptions are less likely to arise.

Individual Work

Teaching Methods at More Advanced Stages

15·1·1. Individual work, as would be expected, increases in importance as we go up the school, though a few teachers, chiefly owing to examination and syllabus difficulties, confine it to the lower forms—subject to a good deal of direction, it may be said. During every year of his course the pupil should be gradually acquiring the habit of collecting his own facts, of disregarding the unimportant, and of stressing the important, until by the time he reaches the advanced course he is competent, with the minimum of direction, to proceed by himself.

15·1·2. Success in individual work depends on the existence of a good reference library in the school. It is the inculcation of the library habit of research that is one of the justifications of this type of activity, and where adequate facilities exist there is much to be said in its favour. Some guidance, however, is needed from the teacher in the use of reference books and it is necessary to see that the pupil should progress gradually from the stage where detailed references are given to that of unaided research. It is possible to supplement the small and inadequate Geography Room library by using short sets of textbooks that often lie idle in the stock cupboard, or by requisitioning a number of short sets of different titles instead of a complete set of the same book for the whole form. It is essential, however, that the more advanced academic type of reference book and the textbook should be supplemented by original source books containing accounts of first hand experiences and with good illustrations. Public Libraries may be drawn upon for this purpose and the willing help of librarians often extends to obtaining copies of books not on their shelves for the special use of the students. The school itself may be constituted a branch of the County Library and receive each year or term consignments of books, including specified works of Geography or Travel. In any case the co-operation of the local librarian should be sought. From the educational point of view it may be regarded as an advantage if older pupils are obliged sometimes to follow channels of research outside the Geography Room itself.

The Geographical Essay

15·2·1. Some teachers make individual work in the form of essays on some specified topic, written and illustrated by the pupils themselves, a regular part of the course. The excellent plan of having these essays read and discussed in class is generally followed by such teachers. The advantages of this particular type of individual work are the encouragement of initiative and of the spirit of discovery, the interest that is naturally aroused in a pupil by the feeling that he is doing a piece of work for himself and has a free choice of methods, and the more thorough grasp of any topic that will be acquired: for, at least, the method ensures the careful reading of the textbook or of some other source book, and requires much concentrated thought on the part of the pupil if he is to produce a creditable piece of work.

15·2·2. On the other hand, much misdirected effort may be expended, since young pupils have little sense of proportion and are very likely to present a distorted view of the subject in hand. The Geographical Essay, indeed will find little, if any, place in the work of the lower forms.

15·2·3. It may be pointed out that some of the weaknesses of the essay method may be corrected, or minimised, by the class discussion of a list of headings under which work on any topic is to be arranged. This will go far to ensure a proper observance of perspective. It must also be emphasised that such work needs more careful correction by the teacher than work done under his more immediate direction. This is an important point, since corrections make very large demands on a teacher's time.

15·2·4. The question whether the essay is to be a definite feature and to form an important part of the work in Geography must depend upon the time available and the syllabus to be covered. It is certain that less ground will be covered in a given time than by ordinary class teaching, and unless a generous allowance of time has been made the teacher may find at the end of the term that he has been unable to complete his syllabus. It would seem, therefore, that where time is an important factor, the individual essay method will be rather an occasional expedient than an essential feature of the course; but its wise use should be highly beneficial. Where pressure of time will not permit of this method forming a regular feature of the Geography teaching in the main course, the same technique can be developed in the preparation of papers for Geographical Society meetings held out of class time, or for a Holiday Essay Competition.

15·2·5. The following are two examples of the way in which the Geographical Essay method is used by the Committee's correspondents:

(1) "In the third year of a four years' course each pupil takes some subject chosen from a list and does individual work on it. The reference library plays a big part in the preparation of the paper or essay on the subject. The pupil then reads the paper to the class and answers any question they may wish to put to him."
This plan is used for one lesson out of three.

(2) Another plan, used in the third, and, to a lesser degree, in the fourth year, is as follows:

" A wide subject is chosen and divided into sections. For each topic a list of essential points is drawn up and some of the books necessary are indicated. One topic is given to a *pair of boys*, one boy in each pair being responsible for the written material and the other for the illustrations. One reads the paper to the class, when the topic is presented, and the other displays and explains the illustrations. Discussion and explanations follow."
Here again the method is used in one period out of three.

The Dalton Plan

16·1. No detailed description of the working of the Dalton Plan has been forthcoming in the replies to the

Committee's questionnaires, but the following account of a slightly modified Dalton system, kindly furnished by a lady teaching in a London school where the system is successfully worked, may be of interest to those who desire to experiment in this direction. It may be mentioned that the plan was adopted after a trial had been given to the ordinary pedagogic method.

Time-table

16·2·1. Before the school was worked under a modified Dalton Plan in the 5-year pre-matriculation course, two lesson-periods of 35-40 minutes each were allowed on the time-table for Geography and one preparation period at home.

16·2·2. Under the modified Dalton Plan, the arrangement is as follows: In the first year, two lesson-periods of 40 minutes are allowed and two free-study periods. In the second, third, and fourth years, the scheme is slightly modified with a view to lessening the call on the pupils' organising ability. History and Geography are studied alternately for six months at a time. This, of course, is *not* an essential of the plan, and in practice means that instead of the time-table allowing one lesson-period of 35-40 minutes and two free-study periods per week for the complete session, two lesson-periods of 35-40 minutes and four free-study periods per week for the half-session are allowed. Two of these free-study periods *must* be spent in the Geography room. The remaining time may be spent either at school or at home. In the Matriculation year, two lessons of 35 or 40 minutes per week are given, and four lessons per week of the same duration in the Higher Certificate years.

16·2·3. The school time-table is arranged so that lessons are given from 9.5 a.m. to 10.25 a.m. in the morning and during all the afternoon sessions. From 10.35 a.m. to 12.30 p.m. every day is "free-study time," when the girls are free to choose their subjects to study. Thus at any time between 10.35 a.m. and 12.30 p.m. there may be present in the Geography rooms at any one moment girls of all ages from twelve to eighteen, representing any or all of the forms taught by the mistress concerned. Bells are rung every 40 minutes to mark the passage of time, but girls may leave the room at any time, as soon as a piece of work is completed, and there is no reason why a girl should not spend the complete free-study time for one day at one subject, should she so desire.

The Syllabus of Work

16·3·1. The year's work is divided out into sections covering roughly three to four weeks' work each. The syllabus of work to be covered during each three-four week period is hectographed, and each girl is given a copy at the beginning of each three-four week period.

16·3·2. The *aim* of the syllabus is to map out for the girls the amount of work to be covered, and to indicate the sources from which information can be obtained. Except for the senior classes, it has been found necessary to subdivide each syllabus of work, stating the amount to be covered each week, as it takes a long time to train the pupils in the wise management of their time. For the older girls a brief analysis of the work to be done is sufficient. For the younger children more detail of the work to be done is necessary.

16·3·3. A good syllabus must indicate the sources from which information can be obtained. This has necessitated the formation of a *Geography Library*, which has been divided up among the Geography rooms, according to the ages of the girls using the rooms. Textbooks, reference books, books of travel, maps, globes, pictures, and specimens are to be found on the library shelves. These are used in the room during the free study time, and books may be borrowed for one night for study at home. Each girl has, in addition, her own atlas and a standard textbook for the region she is studying. It has been found in practice that to offer the younger girls too great a variety of books has led to confusion, lack of grip, and waste of time. Older girls may have access to a greater variety, and it is believed that to make use of an index and table of contents, to choose the relevant from the irrelevant, is a valuable training for after-life, whilst undoubtedly access to books of divergent views fosters the critical spirit. Each syllabus contains the amount of work which the average pupil is expected to complete in the time. At one time supplementary work was also included, to be done by the quick worker at her own choice, but this method failed to give satisfactory results; now the needs of any girls desiring to do extra work are dealt with individually. Additional work does not encroach on the work of the next syllabus, but rather takes the form of wider reading on the subject-matter under study, or exercises of a more problematic nature. Practical work, such as model making and the preparation of large maps for class use, statistical maps, graphs, etc., can often be done by the quick, interested workers.

The Use of the Class Lesson

16·4. The proper use of the class lesson is, obviously, a big problem in the scheme. The class lesson is the most valuable source of inspirational work; every minute of the time must be used to advantage. Its use varies from week to week according to the demands of the syllabus. It may be used to explain a part of the subject-matter likely to form a difficulty for all, to show the method of working a new type of exercise, to illustrate a point in style, to work out an analysis, or to make a rapid revision, linking a series of lessons.

Free Study Time

16·5. But it is the use of the *free-study time* that distinguishes our modified Dalton Plan from the more rigid time-table plan, and for the teaching of Geography the scheme seems to offer a great many advantages:

(1) The child with the slow-moving brain has greater opportunity for real individual work if studying quietly at her own rate in the free-study period, and will arrive at her own conclusions without interference from her quicker neighbours.

(2) Under the Plan, competition is definitely discouraged. The quality of the work done is usually assessed for the satisfaction of the individual, but no order of merit lists are issued. Co-operation is encouraged; girls may work together in groups, and are allowed to help each other. A quick worker can be used in study periods to "test" a slower worker or to explain a difficulty to her. She is often found to be a patient and most efficient teacher.

(3) Girls are encouraged to bring outlines of essays or exercises *before* completion, for discussion with the mistress. This is particularly valuable, for even a few minutes' consultation may mean that the pupil avoids committing to paper a series of blunders that might have been written had the work been done at home. It is not, of course, possible to give this supervision to every girl every week, but, under the modified Dalton Plan, one soon gets to know the individuals more thoroughly than under a class system, and so to know those who are most likely to need assistance, and this help one has time and opportunity to give in free-study time.

(4) The scheme also gives opportunity for correction of the completed piece of written work in the presence of the pupil, if a particular difficulty has arisen, and a brief oral discussion and explanation is much more satisfactory than any amount of written correction.

(5) In free-study time, also, small groups may be summoned to have a particular difficulty made clear, or even to be tested on a piece of work, without delaying the progress of the others.

(6) Maps, illustrations, pictures, specimens, etc., can

be examined at leisure by the girls without the necessity of hurrying off the really interested child to her next lesson.

(7) Individual "free work" forms a feature of the Geography work in the school. From time to time, the girls are encouraged to choose a subject that has some reference to the subject studied in the syllabus at the time. It is surprising to see the eager use of the library made by the girls in the search for just the exact piece of information or the exact illustration required for the simple little study they are making. This freedom to use a library leisurely, and to discuss little problems individually with the mistress, seems to be most valuable.

16·6·1. Another correspondent from a co-educational independent school, experimenting along rather similar lines, found that he was able to cover the normal School Certificate syllabus without undue effort, despite the usual criticism that progress is slow and the demands on the teacher too great. Furthermore, the pupils did outstandingly better in examinations than previous classes taught by normal methods, largely because of their facility in dealing with questions acquired through practice in the assignment method. Quite apart from this, the pupils were better equipped in methods of research and had more opportunity to develop self-reliance and initiative than under the usual class system.

16·6·2. In this case a system of monthly record cards is introduced on which the pupil keeps an account of his progress and of the periods of work put in. This is available for inspection at any time and on it the subject teacher assigns a mark for each unit of work that has been satisfactorily completed. On the other side are two blank time tables to be completed by the pupil as he plans his fortnight's work. A fortnightly time-table is put up of all the single class lesson periods showing the subject teachers available for each of the remaining individual work periods. The pupils copy the class lesson periods on to their time table and decide how they are to allocate the remaining individual periods, so that each subject gets its basic number. The remaining free choice periods are available for special interests or for subjects in which the pupil is backward. The general supervision of the pupil's allocation of time and progress in all subjects is provided by a tutorial system, under which the teachers meet their forms in small groups every fortnight to inspect their cards and discuss progress. Another distinctive feature is the division of each assignment into two sections, a basic part to be completed by all, and a second section of a more difficult nature to provide work for the more able and rapid workers. It was found that this made the disparity in speed and ability between individual members of the class less apparent, and enabled the class to move forward as a whole from one monthly unit to the next.

16·7. Further advantages claimed for this method are :—

(1) The pupil feels that the work is his own and takes a real pride in his note book.

(2) The longer periods of work prevent the frustrated feeling that the single lesson period may produce and enables the pupil to develop his own rhythm of work. He may be active at his own pace instead of passive at a pace governed by the class as a whole.

(3) Absences of staff and children from school cause less interuption to the normal course of work. A pupil can catch his class up by means of the basic sections only.

(4) The teacher is able to guide and demonstrate to individuals and small groups and so help them to become not merely sucessful examinees but good geographers.

16·8. There are, however, dangers inherent in this system. For instance, the unintelligent pupil may copy out whole sections of the textbook, which, indeed, may not even be relevant to the question. This danger of mechanical reproduction may also extend to the case of maps, which can be copied beautifully with little or no measure of understanding. Some pupils will rush through the assignment to be ahead of others, after a very superficial treatment of the subject.

16·9. While many teachers are prepared to admit the value of the Dalton methods in Geography, it is difficult to secure the co-operation of a school staff that is necessary for its full scale implementation. Perhaps it is felt that the work of drawing up assignments, the marking, and the individual attention required present much greater demands on the teacher than the usual methods, especially where classes are large. In the circumstances there seems little hope of its large scale use in Secondary Grammar Schools, but some of its principles might well be used. The geography specialist can ask for his time-table to be arranged in single periods for class lessons and double periods for individual work, thus putting the subject in line with other practical subjects. He may then use an assignment system, for individual work in the double period and for homework, quite independently of the organisation of the rest of the school. The advantages to be gained from allowing for different rates of individual progress, training in the use of reference books, and individual attention from the teacher can thus be realised within the limits of the normal time-table. If the value of these methods could be demonstrated by a greater number of teachers, the Dalton Plan would have the backing of a body of practical experience, which might lead to its acceptance in a larger number of schools. All this would be in line with recent tendencies in educational circles to stress the value of individual work, and would enable Geography to maintain its position in the forefront of educational progress.

Broadcast Talks

17·1. The educational value for Secondary Schools of Broadcast Talks in Geography is by no means universally admitted. This is in part because only a comparatively small number of Geography specialists have tried them, and few have gained sufficient experience to enable them to discover the best ways of using the talks. This in turn is undoubtedly due in large measure to the organisational difficulty, experienced particularly in the Grammar Schools, of arranging the time table so that the classes for whom talks are desired can take Geography at the appropriate times. The fact remains that in a few schools this difficulty has been overcome, and that there are in these schools teachers who are convinced that Broadcast Talks can play an important part in geographical education. Even in these cases, however, the use made of geographical talks tends to be intermittent, since it is not always that a series of talks is sufficiently related to any part of the syllabus which the teacher desires to cover.

17·2. It is the experience of some teachers that, especially in the first two years of the Secondary School course, Broadcast Talks can arouse very great interest, discussion and co-operative activity amongst the pupils. It is perhaps not wise to embroider the broadcast lesson with too much formal preparation or follow-up; and it may even pay to depart from the planned syllabus—or at any rate to rearrange it—if a series of talks put on by the B.B.C. promises to be really good and suitable for these younger pupils. One correspondent writes: "It is my system to place the talk on the map, and then to invite discussion. This is usually very vehement after the first two or three talks. Then the pupils write up the talk, with no restrictions on form or length. The efficacy of this is shown by the fact that I have had essays 20 pages long, with maps and illustrations, from first-year boys."

17·3. Broadcast Talks are criticised on educational grounds by some teachers. Although experiences such as that quoted above cast considerable doubt on the idea that pupils are necessarily merely passive listeners, retaining little impression of a talk, other criticisms must be carefully considered. It is evident that since a talk is not addressed to a particular class, the speaker can have no knowledge of the pupils to whom he is talking. It therefore frequently happens that he assumes (as he is bound to) a certain degree of attainment, and can make no allowance for ignorance of the things he assumes. On the other hand, for the same reason, he may, for certain pupils, stress the obvious to the point of tedium. It must be borne in mind that the teacher cannot intervene during the broadcast in the way he can when showing a film. It is suggested that the difficulty could be minimised by designing talks to cover much narrower age ranges than is often the case at present, though it is realised that this would either necessitate a far greater number of talks or else would cut down the number of children who could make full use of the talks in any one session. The very good pamphlets issued by the Central Council for School Broadcasting to schools which have registered for them,[1] do, of course, lessen the chances of the talks missing their mark, but they are only a partial solution of the difficulty.

17·4. The essential feature of Broadcast Talks is that they should bring the freshness of first-hand experience into the classroom. The kind which have been found most successful with junior forms, perhaps more especially the A streams, are those dealing at first hand with travel and exploration. In the middle school, where there is still some scope for variation of the syllabus, talks designed to bring out the importance and interdependence of the people of a major region of the earth have been used successfully; and it is suggested that a series on farming here and abroad could be a valuable antidote to the urban-mindedness of the majority of pupils. The demands of School Certificate and the relatively small amount of time allowed for Geography have in the past deterred the great majority of teachers from making any systematic use of broadcasts in upper forms; and until the effects of the change-over to the General Certificate Examination have been more clearly seen it is not possible to forecast any greater use in the future. In the Sixth Form, on the other hand, there does seem to be scope for the use of talks giving the geographical background to many subjects of wide importance, on which it is essential that future citizens should be able to arrive at well-informed and balanced judgments. While it is doubtful whether such talks would have more than incidental value to those specialising in Geography for the advanced stage of the General Certificate Examination, it seems indisputable that they would place before the Sixth Form in general information the sources of which are too scattered to be collated by the specialist teacher.

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[1] In order to make full use of available series of Broadcast Talks, it is necessary for schools to register with the School Broadcasting Council, 55 Portland Place, London, W.1. They will then be supplied with termly schedules of talks, intended for notice board display, and with teachers' leaflets for the series of talks they wish to use. Registered schools also get a substantial discount on the price of pupils' pamphlets, obtainable from: *B.B.C. Publications*, The Grammar School, Scarle Road, Wembley, Middlesex.

17·5. The suggestion has been made, though so far it does not seem to have borne fruit, that periodically, say once a month, a broadcast talk should be given after school hours. The subject matter of such talks could form the basis of discussion and other activities by school Geographical Societies.

CHAPTER V

EQUIPMENT

The Geography Room and Its Equipment

Introduction

1·1·1. Aids to the practical teaching of Geography were not altogether unknown even in the nineteenth century, and the equipment of several of the old Grammar Schools included examples of apparatus which are essential features of the modern Geography Room. At least one school building, indeed, was designed in order that the midday altitude of the sun could be measured accurately, and its main entrance hall was fitted with a Foucault's pendulum for demonstrating the rotation of the earth. Although, however, the idea of special rooms and equipment for the teaching of Geography is not entirely new, it must be recognised that, with certain notable exceptions, the Geography Room, as we know it, is largely the product of the present century, and its development has been along lines with which we are familiar in the case of handicraft rooms and science laboratories.

1·1·2. It is the considered opinion of the Committee that Geography should be taught in a room specially designed and set apart for that purpose. This does not mean that Geography cannot be taught in an ordinary classroom, but that, unless there is a special room where maps and other equipment can be stored and quickly displayed and apparatus arranged ready for use, much of the time of the class and of the teacher is wasted. If the teacher is compelled to carry from room to room all the maps and apparatus he requires, not only is time frittered away, but the materials require to be renewed at too frequent intervals and unnecessary expense is entailed. Again, where the Geography teacher has to change his room every period, it is almost impossible to preserve blackboard maps which may be needed for a series of lessons. If a sketch map of, say, Canada is required for five consecutive lessons, the teacher is faced with the alternative of keeping and carrying a special blackboard or of drawing the same map five times in each room used for teaching the Geography of Canada. If there are three parallel forms studying the same area, fifteen maps must be drawn where one would have been sufficient if all the work in Geography had been done in the same room. But, apart from the consequent saving of time and labour, there is an even stronger reason for the provision of a special room for Geography teaching; for the Geography Room is a workshop, and its general atmosphere should be such as to stimulate the imagination and give inspiration to the pupils in a manner which is impossible where many subjects are taken in the same room.

The Geography Room: Position and Size

1·2·1. In the older schools rooms of various shapes and sizes have been adapted to the teaching of Geography, but in the case of a new school, where it is no longer possible to plead the prohibitive expense of adapting existing premises, and where it is just as easy as not for the architect to provide as good facilities for Geography teaching as for any other subject, the Geography teacher should make a stand for certain minimum requirements, particularly as regards position and size.

1·2·2. A room with windows on the south side of the building is a necessity, and it should open directly on to the school field or playground or, at least, on to a balcony where direct observation of the sun and of the weather can conveniently be made. The best position is that shown in Fig. 34: but where it is impossible to build a room in such a position, a corner room with a southern aspect should be chosen. Easy access to the school grounds for weather observations and other out-door practical work is important.

1·2·3. Since Geography is essentially a practical subject the Geography Room is to be regarded as a laboratory in which, or adjacent to which, a large quantity of material and apparatus needs to be stored in an easily accessible manner; and in which the pupils can freely move about in carrying out such work as requires the use of large maps, of instruments or apparatus, of the tracing table, or of pictures and specimens. Sufficient space, too, is required near the window for sun-shadow or other experiments. If the design of the school is such that all the material has to be stored *in* the Georgaphy Room an area of at least 1,200 sq. ft. is essential; many geography specialists regard this as a minimum even when an adjacent store room is available. In the case of schools with over 300 pupils it is inevitable that more than one class will take geography at the same time, and it is necessary in such a case to have a second Geography Room. This need not be equipped as elaborately as the first, but should possess facilities for projection and wireless reception, and have easy access to all maps and other material.

Lighting

1·3. The Geography Room should be provided with a water supply and a sufficient number of points for the supply of electric power as well as light. The lighting arrangements are of the greatest importance. The switches should be so arranged that the teacher is able to illuminate any part of the room, or to use a dimmer, without moving from his desk or projection point. The position of the lamps, which should hang where they will obscure nothing thrown on the screen, is important. Provision should be made for illuminating the blackboard when the rest of the room is in darkness.[1] All the windows should be

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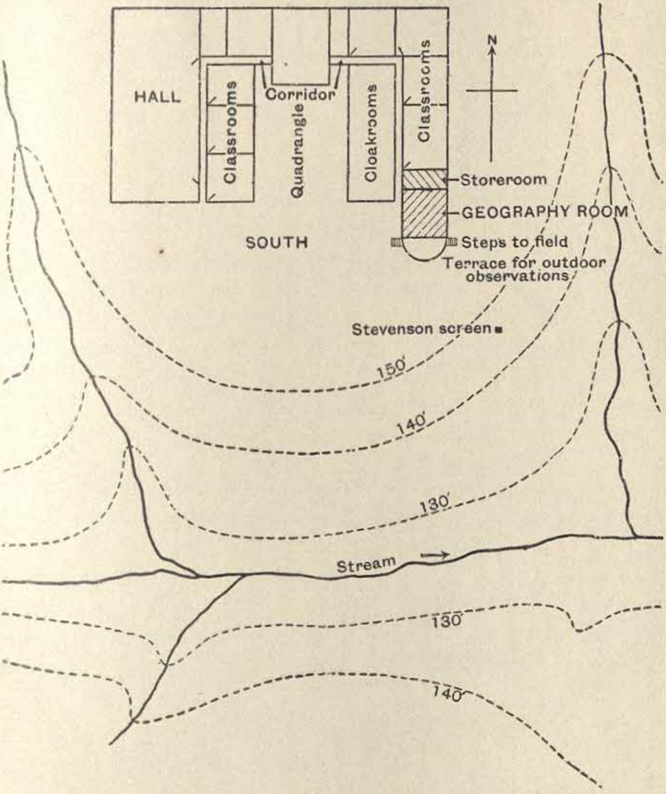
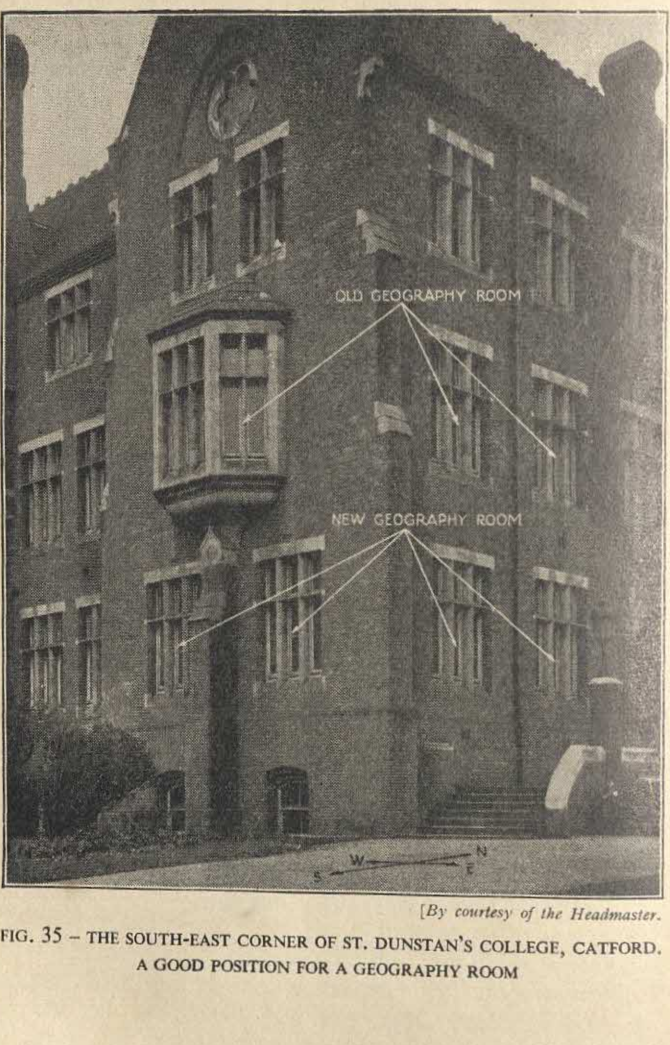
[1] See plan on p. 228.



Scale : 1 inch = 100 feet

FIG. 34 – PLAN TO SHOW THE POSITION OF A GEOGRAPHY ROOM IN RELATION TO THE REST OF THE SCHOOL BUILDING



[By courtesy of the Headmaster.

FIG. 35 – THE SOUTH-EAST CORNER OF ST. DUNSTAN'S COLLEGE, CATFORD. A GOOD POSITION FOR A GEOGRAPHY ROOM

capable of being darkened easily and quickly: for the episcope, in particular, complete darkness is necessary. Opinion is divided between those who advocate the use of light-proof shutters or blinds and those who prefer hanging curtains of dark material which can be pulled across the windows. Spring roller blinds with edges running in grooves fitted to the windows, on the "zip" principle, are light-proof but very easily get out of order. Blinds or shutters exclude all light, but, when they are in use, fresh air is also excluded and additional means of ventilation should be provided. Dark curtains collect dust, but where they are used the room may be darkened more quickly and air is not excluded to the same extent.

Blackboard and Wall Display

1·4·1. As much as possible of the wall space between dado and frieze should be kept free from furniture for blackboard, screen, and map and picture display. A large part of this space should be covered with some such material as Essex board so that pictures, posters, maps, etc., can easily be pinned up: but ample room should be left for blackboard work. One or two large sliding blackboards will be found useful. Part of the blackboard should have a squared surface, preferably of 2-inch squares, incised in, rather than painted on, the board, since the marks are then invisible to the class and the finished drawing is so much the clearer. A rubberised blackboard is obtainable, having four areas, any one of which can be brought into use or hidden. The roller type of chalkboard is often preferred. A permanent map of the world outlined on a special blackboard is found useful. Pictures may be displayed in loose-back frames suspended from a picture rail, in special frames sliding between horizontal rails, or merely pinned to the panelling of match-board or pulp-board or to a broad flat rail. The last-named method is more destructive of the pictures, but is handier and available for pictures of any size.

1·4·2. A simple method of displaying large posters or other large pictures on ordinary paper is to attach with drawing-pins to the back of the picture, at the top and bottom, ordinary builders' laths cut to the required length, the top lath projecting an inch or two at each end so that it may be eyeletted and fitted with cords for suspension. This method may also be used for displaying large paper maps. It is advisable, for the sake of balance, to hang such pictures or maps in pairs, one on each side of the laths. Pictures and maps suspended in this way may easily be stored in a cupboard fitted with a pair of battens on which the projecting ends of the top laths may rest. An ordinary store-cupboard, 5 ft. high, will take up to fifty such paper maps or pictures.

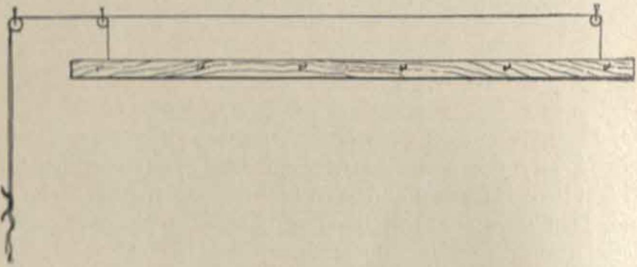


FIG. 36 – A SIMPLE MAP-HANGING DEVICE

1·4·3. Eyeletted and folded wall maps are increasingly popular as they can be stored easily, and shown hanging on hooks fixed in the picture moulding: but, if more than one size is needed, sliding hooks should be used. There is a form of curtain rail sold in 15-inch lengths with easy running pulleys that would obviate this difficulty: or a special form of map rail may be obtained. Where the walls are high a simple device of pulleys for raising and lowering a batten fitted with hooks may be used, in order that maps may be hung at a height suitable for observation by the class.

1·4·4. The frieze, too, can be utilised. Some schools have the names of the greatest explorers painted thereon; others fill the space with pictures, such as those formerly issued by the Empire Marketing Board. One large school employs it to show a silhouette of a section from the school to the Thames. Decorated friezes add to the attractiveness of the Geography Room.

1·4·5. The cardinal points should be painted either on the floor or on the ceiling.

Furniture

1·5·1. The furniture of the Geography Room should include stout flat-topped tables, each accommodating two pupils, large enough to hold quarter-sheets of the Ordnance Survey or even larger maps; and strong chairs or stools. Some teachers prefer tables to be fixed to the floor, others those that can be easily moved. Where the tables are fixed it is possible to have them wired for electricity in order to supply light for tracing. Tracing desk tops can be made quite easily in the woodwork room, wired with 30-watt strip-lights, and fitted with thin annealed glass as shown in the diagram on p. 229: ground glass has some advantages but is not essential. The tracing desk should be placed in a position with as little top light as possible. When not required for tracing, the upper part of a large tracing desk may be used for the display of specimens.

1·5·2. A master switch at the teacher's desk should control all the lights used on the pupils' tables. The teacher's table should be strongly built and be large enough for the display of specimens, models, and apparatus. If water is laid on, one end of the bench may contain a glass tank, open to view on three sides. In this relief models may be displayed for advanced map work and also to enable the younger or backward pupils to visualise contours.

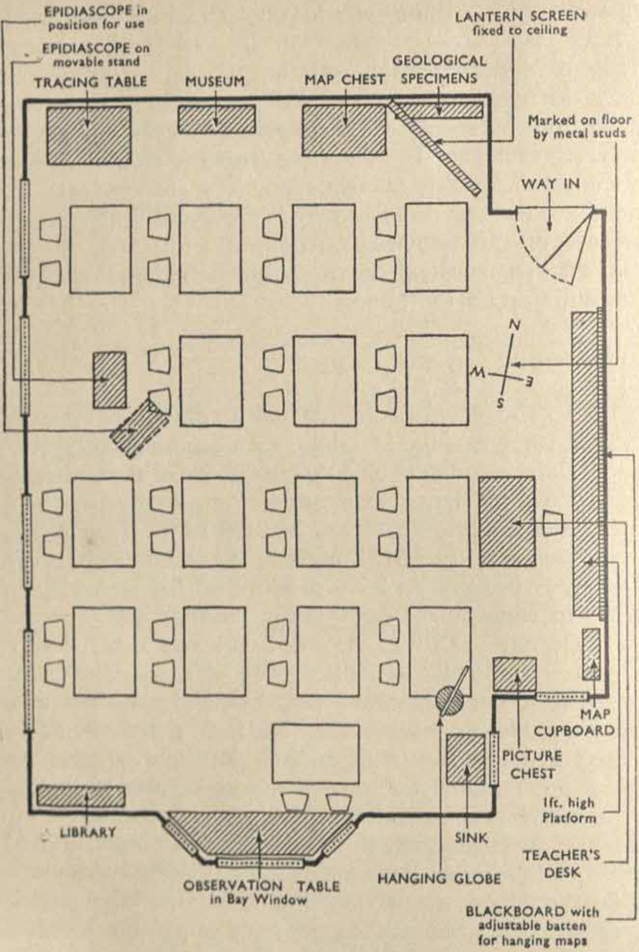

EPIDIASCOPE in position for use
EPIDIASCOPE on movable stand
TRACING TABLE
MUSEUM
MAP CHEST
GEOLOGICAL SPECIMENS
LANTERN SCREEN fixed to ceiling
Marked on floor by metal studs
WAY IN
N
W
E
S
MAP CUPBOARD
PICTURE CHEST
1ft. high Platform
TEACHER'S DESK
BLACKBOARD with adjustable batten for hanging maps
LIBRARY
OBSERVATION TABLE in Bay Window
HANGING GLOBE
SINK

FIG. 37 – PLAN OF THE GEOGRAPHY ROOM AT THE NEW WILLIAM ELLIS SCHOOL

All windows have blinds running in slots. Dimensions approximately 36 feet by 30 feet.

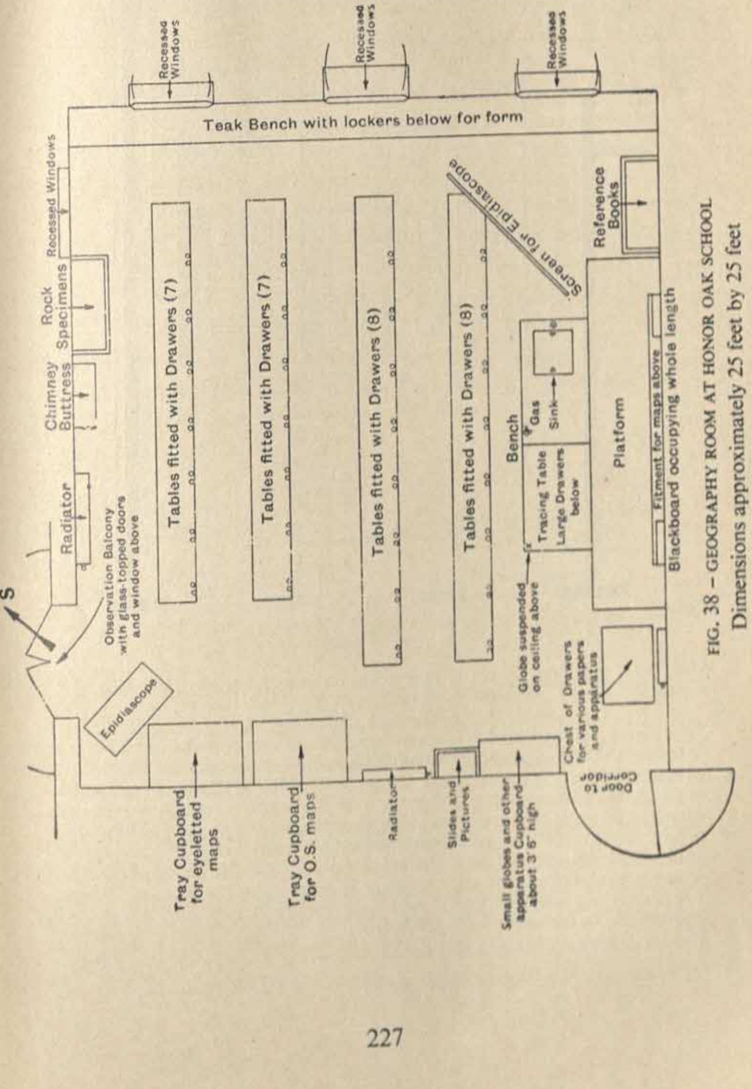

S
Recessed Windows
Recessed Windows
Recessed Windows
Recessed Windows
Teak Bench with lockers below for form
Radiator
Chimney Buttress
Rock Specimens
Observation Balcony with glass-topped doors and window above
Tables fitted with Drawers (7)
Tables fitted with Drawers (7)
Tables fitted with Drawers (8)
Tables fitted with Drawers (8)
Screen for Epidiascope
Reference Books
Bench
Gas
Sink
Tracing Table Large Drawers below
Platform
Fitment for maps above
Blackboard occupying whole length
Globe suspended on ceiling above
Chest of Drawers for various papers and apparatus
Epidiascope
Tray Cupboard for eyeletted maps
Tray Cupboard for O.S. maps
Radiator
Slides and Pictures
Small globes and other apparatus Cupboard about 3' 6" high
Door to Corridor

FIG. 38 – GEOGRAPHY ROOM AT HONOR OAK SCHOOL
Dimensions approximately 25 feet by 25 feet

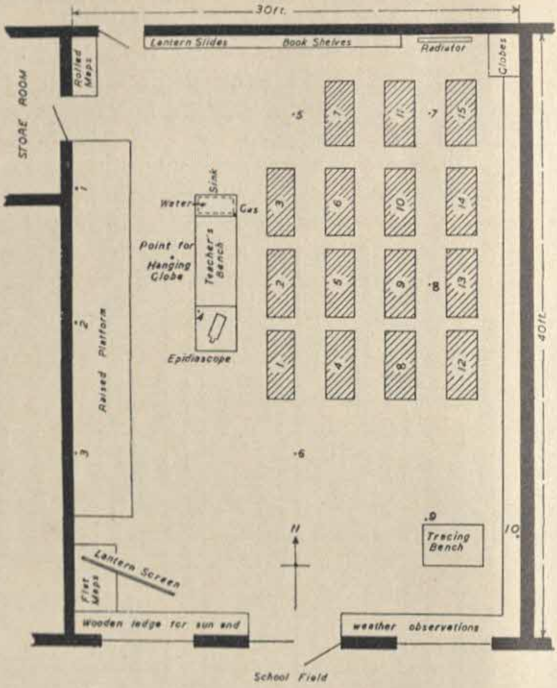


FIG. 39 – PLAN OF A GEOGRAPHY ROOM SHOWING ARRANGEMENT OF THE FURNITURE

The lantern screen, which is seven feet wide, is suspended from a batten fixed on the ceiling and may be pulled up when not required. The points where electricity is required are numbered 1 to 10. Numbers 1, 2, and 3 illuminate the blackboard. Number 4 on the teacher's bench is a master switch and with it there is an independent switch for the epidiascope. The tracing table may be illuminated either from 9 or 10. The pupils' tables are numbered and shaded 1 to 15. As far as possible the space between the dado and the frieze is covered by blackboard. There are ledges for observational work and for display of specimens and models along the south and east walls.
(From *Education*, March 1st, 1935.)

The lid of the tank may be used to support the epidiascope. The centre of the bench should contain a drawer large enough to hold large sheets of the Ordnance Survey maps, and the storage space underneath may be used for globes, models, and apparatus. There is, however, by no means universal agreement as to the desirability of combining the master's desk with a demonstration bench. One well-tried arrangement is to have the chalkboards in front of the class and the teacher's bench, accommodating the projector, at one side. The projector can thus be operated obliquely across the room from the bench. Another arrangement also places the demonstration bench at one side, together with the water supply and sink, and the teacher's administrative desk in front.

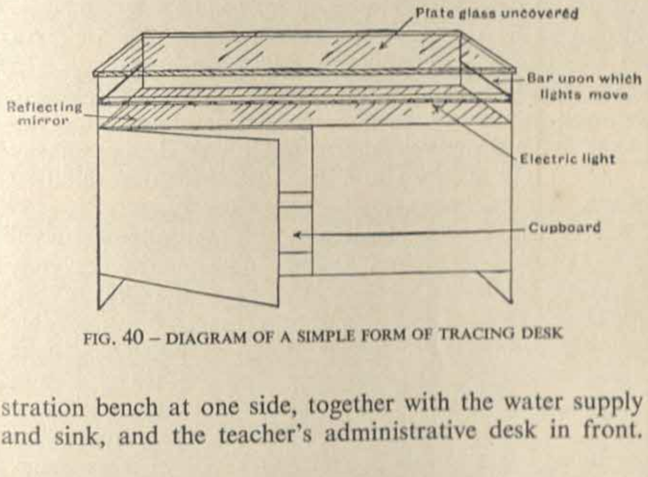


FIG. 40 – DIAGRAM OF A SIMPLE FORM OF TRACING DESK

Storage Arrangements

1·6·1. Space must be found in the room for the storage of flat maps, pictures, books, lantern slides, episcope views and films, and, as wall space is valuable, the cupboards where these are kept should not rise much above the dado. The shelves where the books are kept may be open or, if it is desired to keep them locked, fitted with sliding doors. The map cupboard which is found most generally useful for eyeletted maps is of the type used in art rooms for storing large sheets of paper. For roller maps a higher cupboard with hooks in its ceiling, from which the maps hang vertically, is sometimes used: but see also § 1·4·2 above. Wherever possible an observation bench should be arranged against a south-facing window, the space beneath being utilised as a storage cupboard. Such a window bench is especially valuable if the Geography Room is not on the ground floor.

1·6·2. Ordinary card-index file drawers are extremely useful for the storing of lantern slides and episcope views. Metal transfer cases are easy to handle and may be introduced as the number of such views increases. All these can be placed upon the wall cupboards or in one of the storage cupboards under the teacher's bench. Where the wall cupboards have been kept level with the top of the dado, their tops may be fitted with glass cases (say 2 ft. by 3 ft. 6 ins. by 1 ft. 6 ins.), useful for the exhibition of museum specimens.

1·6·3. The supply of pictures is practically unlimited —all is grist that comes to the mill—but, as very few pictures are needed at any one time, the illustrations must be carefully classified and stored in an easily accessible manner. Brown paper folders stored in portfolios make classification easy. A beginning may be made with a portfolio for the British Isles and one for each continent; one for Physical and one for Human Geography. The portfolios can easily be made with sheets of strawboard, brown paper, and bookbinder's cloth or blind-cloth.

The Makeshift Geography Room

1·7·1. In the case of old schools where there has been no special provision for a Geography Room, it may be necessary to adapt an existing room for use as a Geography Room. It is possible to convert a disused domestic science

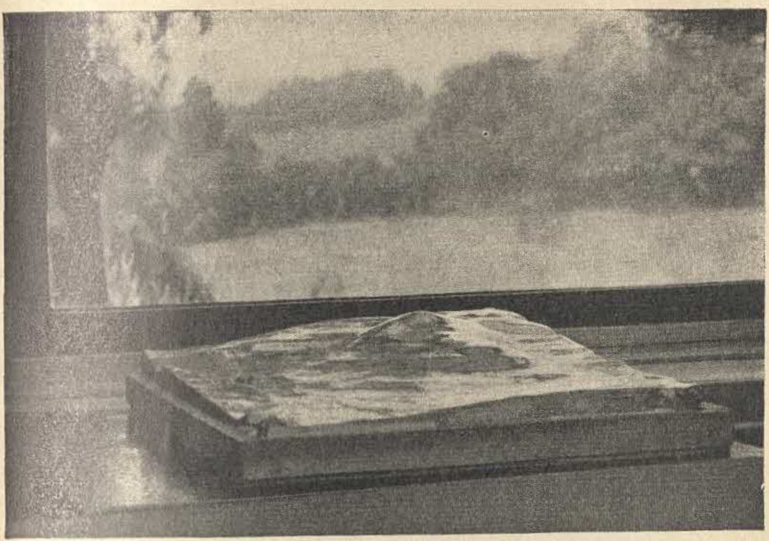


FIG. 41 – IN THE FOREGROUND IS A RELIEF MODEL, 25 INCHES TO 1 MILE, OF THE SCHOOL REGION, SET SO THAT IT FITS THE VIEW FROM THE GEOGRAPHY ROOM WINDOW; THUS IN THE CLASSROOM PUPILS CAN SEE THE MAP, MODEL, AND NATURAL SCENE

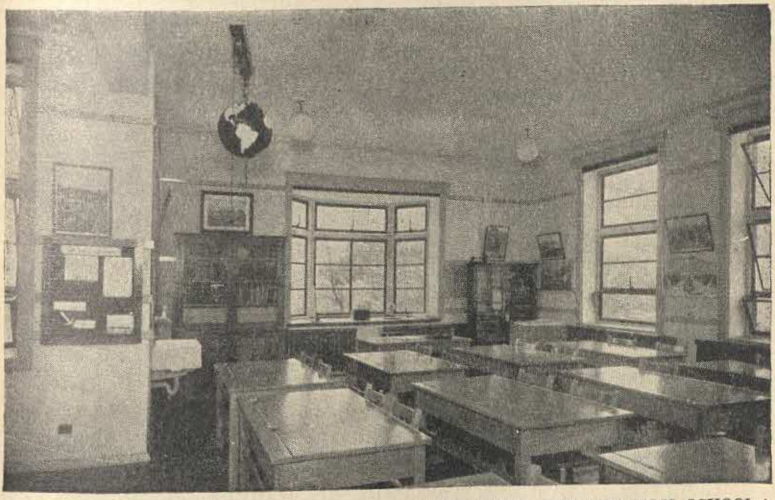


FIG. 42 – OBSERVATION BAY IN NEW GEOGRAPHY ROOM, WILLIAM ELLIS SCHOOL; ALSO SHOWING HANGING GLOBE, GEOLOGICAL CUPBOARD, PUPILS' LARGE TABLES, SINK, AND ELECTRIC WALL PLUG

kitchen or an Art Room into an efficient Geography Room, provided only that the windows face south. In such cases the teacher must make his own plan of how to arrange the furniture, but he should try to keep as much as possible of the wall space free for diagrams, maps, and pictures.

1·7·2. One advantage of a makeshift Geography Room is the freedom which it allows for experiment. In the case of one such room the boys were allowed to cover the walls with cheap wall-paper, the wall space then being covered by maps and paintings. The east wall contained a map of the major climatic regions on an equal-area projection, the panels being occupied by paintings of typical scenes in various regions. The north wall was covered with a geological map of the world with panels illustrating such things as glaciers and volcanoes. The panels on the south wall between the windows were filled with a section of the earth's crust, a section of the earth's atmosphere, and a temperature graph of the atmosphere up to the height of the meteoric showers. It was planned to show the world route map from *Geography and World Power* and Wells's conception of the United States of the Old World, but a new room was built before this could be accomplished.

Optical Apparatus

2·1·1. The place of optical aids in class teaching has already been considered in the preceding Chapter, and the following paragraphs refer to their more detailed description, with practical hints as to their use in the Geography Room. The provision of efficient optical apparatus is of the greatest importance. Such types of apparatus must be reliable and fool-proof, giving clear, bright pictures, with a minimum of trouble in bringing them into action and a consequent minimum of interruption to the continuity of the lesson. Unsatisfactory

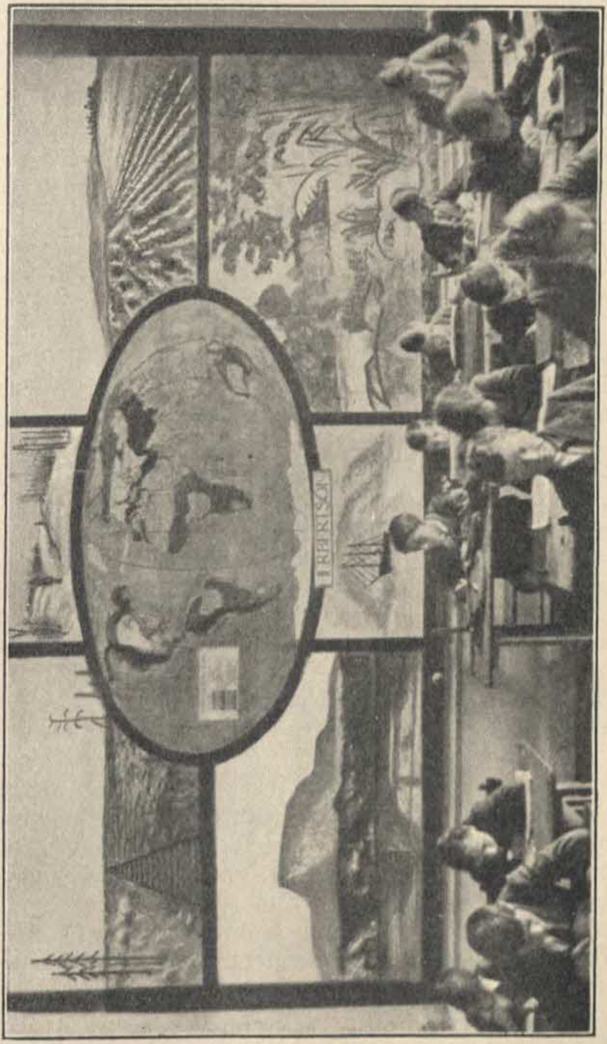


FIG. 43 – THE EAST WALL OF THE OLD GEOGRAPHY ROOM, HENRY THORNTON SCHOOL

conditions can easily turn a visual aid into a visual hindrance.

2·1·2. It is most important that, before making a purchase, care should be taken to find out what is the most suitable apparatus for the special conditions and work to be done. For this purpose it is suggested that a close study should first be made of the Ministry of Education's publication, *Optical Aids*, No. 115 (H.M.S.O.), and the British Film Institute's *Teaching with School Projectors*. The size and shape of the room and the position of the windows will influence the choice of screen and the focal length of the lens. If ventilation is likely to be difficult, then heat must be kept to a minimum by ensuring the most efficient optical system and perhaps the use of low-voltage lamps, with a transformer or resistance, since such lamps produce less heat for the same amount of light. It is also worth while to write for particulars of the different instruments;[1] and those selected for possible purchase should be tried out, by arrangement with the suppliers, under the actual conditions of use, so that relative brilliance, with the same material, can be tested and possible difficulties discovered.

Screens

2·2·1. The *white* screen can be quite efficient and is the only kind suitable if some of the class are seated near to the screen or well to one side. It reflects the image evenly in all directions; but it also collects extraneous light, such as that from imperfectly darkened windows, which may mean an indistinct picture for the whole class. The *beaded and silvered* screens, on the other hand, are "directional," giving a brighter image in front, but towards the extreme sides a duller image than that from a white screen. Such screens are, therefore, best used in a long narrow hall, or in such a way that the whole class is

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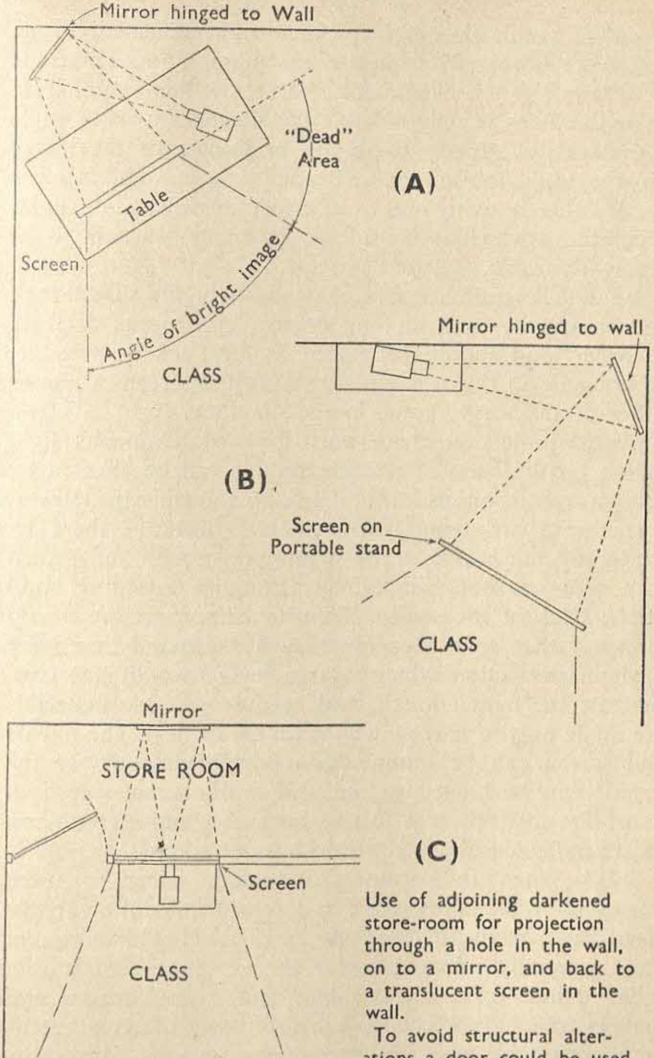
[1] Lists can be obtained from such publications as *Material for Visual Education*, published by the *Daily Mail* School-aid Department.



Use of adjoining darkened store-room for projection through a hole in the wall, on to a mirror, and back to a translucent screen in the wall.

To avoid structural alterations a door could be used.

FIG. 44 – DIAGRAMS TO SHOW THE USE OF A TRANSLUCENT SCREEN

included within the angle of the bright reflected image, e.g., from corner to corner of a square room. This type of screen has the advantage that stray light coming in from the sides is reflected off the screen at a wide angle and does not greatly affect the brightness of the image for the audience in front. Beaded and silvered screens are of value in giving improved projection in semi-daylight, a condition which is considered by many teachers to be highly desirable.

2·2·2. The *translucent* screen is also highly directional, and should be used in long narrow classrooms or from a corner, and should be placed as far back as possible. In order to do this it is best to set up the screen in one or other of the ways shown in the diagrams (pp. 226–228). In back projection there must be no extraneous light falling on the *back* of the screen; this can be effected by using a store room as in Fig. C, or by choosing the darkest corner and arranging really efficient blackout there by darkening the walls, or by arranging mirror and screen in a box, or, most simply, by arranging a folding hood at the back of the screen. Translucent screens are nearly always rather small because they are generally used for daylight projection when a large image would not concentrate the light enough, and because suitable materials are made only in narrow widths (27-36 inches). The mirror and screen can be mounted on portable stands, or the mirror can be hinged to the wall in the same way as a door. Trouble taken in solving such mechanical problems as are indicated above is repaid a hundredfold.

2·2·3. When the ordinary reflecting screen is used, positions of the epidiascope and screen in relation to the class are shown in Figs. A and B. The arrangement most generally adopted is for the screen to work as a roller blind from the ceiling, and there are several makers who have specialised in the fitting of such screens at a reasonable cost. A screen may also be formed by distempering part of a wall. but this takes up valuable space and limits the possible positions of the projector. Another form of screen is a light rigid wooden frame covered in front with linoleum which is enamelled white and has dark picture-frame moulding round it. When in use this is suspended from each top corner by a three-cord suspension, so that these corners are fixed in space. It may be tilted towards the projector by a cord attached to the back of the frame, and when not in use may be hauled up near the roof. Such a screen is easily adjusted once and for all, is unaffected by draughts, and does not get in the way.

Lantern and Film-strip Projector

2·3·1. Illustrations for Diascope projection must be in the form either of lantern slides or films. The old glass lantern slide of standard size, 3¼ inch square, is still largely used, but the 2 inch square, or the 35 mm. film is handier and cheaper. The larger glass lantern slides may still be bought or hired in great variety, but slides can also be made from cellophane[1] cut to the standard size. On the cellophane maps and diagrams can be drawn or traced in drawing ink of various colours. When finished the cellophane can be fixed between two lantern-glass cover plates.

2·3·2. The smaller glass slides can be put into cardboard mounts without cover-glass, and, together with film-strips, are very cheap, not so vulnerable as the larger slides, and easy to store and send through the post. The older standard slides are being rapidly superseded by the smaller size, and an ever increasing amount of material of this type is being marketed. Many of the old collections of slides are being re-made in this form. Apart from the possession of standard lanterns and slide collections, perhaps the only fundamental advantage of the large slide is that, as has been mentioned above, cellophane diagram and note slides can be easily made by the teacher and slipped between two hinged slide glasses for immediate daylight projection.

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[1] See § 8 at the end of this Chapter.

2·3·3. For use with the film-strip projector pictures are printed on ordinary 35 mm. cine film, the actual size of the pictures being either 18 mm. by 24 mm. (single frame) or 36 mm. by 24 mm. (double frame). These are projected one picture at a time, the change from one to the next being effected by turning a knob. In addition most film-strip projectors will take the 2 inch glass slides. Keen photographers can, of course, if they possess miniature 35 mm. cameras, make their own film-strips and 2 inch slides easily and more cheaply than standard slides, and their own diagrams can be photographically copied and made into slides; but this is not, of course, as direct as the episcope or cellophane slide method.

Episcope and Epidiascope

2·4·1. In the hands of the trained geographer and experienced teacher the episcope is probably the most useful of all projectors, especially if the teacher is prepared to build up his own picture collection. Even so, there is becoming available a large quantity of good pictorial material in the form of film-strips which he will not be able to obtain in other forms. Even though he may not appreciate the ordered and pre-digested form of the film-strip (perhaps most useful to the inexperienced teacher) he may not be wise to ignore this source of pictures. On the other hand some epidiascopes can also be adapted to use film-strips, as well as 2 inch slides.

2·4·2. The kind of material that may be used with the episcope has already been described in Chapter IV. It should be noted that in the case of pictures shown in this way the question of copyright does not arise. If the same materials (other than the teacher's or pupil's own work and photographs, or materials published over 50 years ago) were reproduced on films or film-strips copyright would be infringed[1].

2·4·3. It may be argued that the epidiascope cannot do both its jobs as efficiently as two separately designed instruments could; but, if it is a good instrument, the added convenience and the opportunity of quick change from one form of projection to the other may more than compensate for this apparent lack of relative efficiency, provided its use is not to be confined to one of its functions only.

2·4·4. In choosing an episcope or epidiascope the following points should be looked for:—A highly efficient reflector system which, together with a large aperture lens, makes fullest use of the light source: good definition: and good ventilation, avoiding the over heating of the object being projected. These problems of construction are difficult to solve and a really efficient instrument may cost from £60 to £120. Some of the cheaper episcopes on the market can be equalled in performance by a rough instrument made in the school workshop.

2·4·5. Where book illustrations are in constant use it is advisable to have these cut out, mounted on cardboard, and filed in a card index. Pictures suitable for use with the epidiascope should not as a rule exceed 6 ins. by 6 ins. There are three sizes of cards in general use for card indexes —8 ins. by 5 ins., 6 ins. by 4½ ins., and 5 ins. by 3½ ins. The largest size is suitable for mounting the excellent coloured illustrations found in the geographical magazines,[2] but the smaller sizes are easier to exhibit as they can be illuminated more completely. A list of sources for the supply of pictures, slides and films will be found in Appendix VI.

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[1] See the British Film Institute's pamphlet on copyright for a more detailed statement of the position.

[2] The *National Geographic Magazine*, for instance, or the *Geographical Magazine*.

Film Projectors

2·5·1. This brief section is not intended to give any direct advice on the purchase of apparatus, but only to outline the basic considerations which must condition a prudent choice. No reference will be made to standard (i.e. 35 mm.) machines, as cost and the risk of fire will make them impossible for all but very few schools. The choice for most must lie between 16 mm. sound projectors, and 16 mm., 9·5 mm., and 8 mm. silent machines. All these take film which is perfectly safe, and are sufficiently simple mechanically to be used confidently by anybody after a little systematic instruction. Almost all cine-projectors, however, designed for educational purposes, now make use of 16 mm. non-inflammable film. A *silent projector* consists essentially of the optical system (which is exactly the same in principal as that of a diascope), and an electric motor driving sprockets, claws, shutter and take-up spool, thus controlling the movement of the film. The *sound projector* has, in addition, a sound head, amplifying unit and separate loud speaker, and is thus much more complicated and unwieldy.

2·5·2. There are comparatively few good educational films at present available in either 9·5 mm., or 8 mm. stock, and the general tendency is for these sizes to be superseded. For classroom purposes the 16 mm. machine is, from all considerations, the one to choose, though the cheapness of the smaller size film-stock might suggest the purchase of a model which will take either 16 mm. or 9·5 mm. films. Some teachers are interested in the making of films for use with their classes, and this type of machine will probably give them the easiest approach to such work.

2·5·3. The relative merits of sound and silent projectors for use in schools are still being hotly discussed in many quarters. They may be briefly summarised as follows:— The price range for 16 mm. silent projectors is £40—£120 (outside this range are a few models too cheap to be really useful, and some "luxury" instruments at prices too high for most school purses). The price of sound machines is over £200. The silent machine is the simpler to operate and is much lighter and more portable. To set against this cheapness, simplicity and portability, the sound projector has only one advantage, but it is the great one, that on a sound machine both sound and silent films can be shown, whereas films with a sound track cannot be used in a silent projector. This considerably increases the utility of a machine which may serve other purposes besides that of mere classroom instruction, whilst even for the classroom there are many who would advocate the use of sound films in which "natural" sound is employed to reinforce the effect of the visual image. Such films are few at present, but will probably be made in considerable numbers before long. If funds will allow, therefore, a 16 mm. sound projector is probably the best type of instrument to purchase. If the cost of such a machine is prohibitive, there is much to be said in favour of choosing one of the several types of silent projector which will allow of easy conversion to sound at a later date.

2·5·4. There is much to be said, too, especially in the case of a large school, for the installation of two machines: one, a 16 mm. sound projector capable of good quality performances, in the school hall, where it may be used for documentary films, of considerable value to other subjects as well as to Geography, and also for cinema club shows, etc. The other projector, a silent machine, of a simple pattern which would be suitable for most classroom films, would be kept in the Geography Room. Not only are the added bulk and complexity of a sound machine an unnecessary complication in the classroom when silent films are being shown, but also the nuisance to adjoining classes may make it objectionable to use sound films even when they are otherwise desirable.

2·5·5. The points other than cost to be considered in selecting a particular machine from the fairly wide range now available are simple but important. Most of them apply to sound and silent models alike.

Light

The first is the light output. This depends on other factors besides the rated wattage of the lamp, and should be ascertained by demonstration and not from catalogue figures. The demonstration should be given with a film of at least average density, the screen should be of the type which is likely to be in regular use, and no more precautions should be taken to darken the room than will normally be taken when the machine is finally installed. Adequate light output is worth paying for, and it is false economy to save money by buying a machine about whose capabilities in this respect the slightest doubt is felt.

Noise

A machine which is to be used for classroom work must be quiet, and any machine should be rejected whose mechanism is noisy. The noise will of course tend to increase, not diminish, with age and use.

Portability

Most silent projectors are fairly light in weight and easily moved from room to room, but sound machines vary considerably. Some allow for easy detachment of the amplifier from the projector unit and so offer an advantage over other types.

Stills

A refinement which some teachers consider essential but which many would disregard is provision for showing stills. This is incorporated in most silent machines, but omitted from many sound models.

Volume and Quality

In purchasing a sound machine, sound output and quality should be carefully tested by demonstration. With regard to the former, it is worth noting that the figures of output wattage given for some American machines should be accepted with considerable reserve. Demonstration with the room full of people is the only satisfactory test.

Electricity Supply

If the school electricity supply is D.C., most sound projectors will require to be used with a converter. This is expensive and heavy, but the quality of reproduction obtained is likely to be better than that of some "universal" (i.e. A.C.—D.C.) models. If a silent projector is to be run on D.C. mains and a resistance is required, the expense can be considerably reduced if the aid of the Physics staff is called in.

Maintenance

It is most important that a projector, especially a sound machine, should be in the charge of one mechanically minded person who thoroughly understands it. Projectors are delicate precision instruments, needing no force in their adjustments, and they should be used only by those trained for the purpose. Regular and correct lubrication is essential.

2·5·6. In conclusion, it should be stressed that this section does not pretend to be exhaustive. Teachers contemplating the purchase or use of a projector would do well to read the pamphlets which were published by the British Film Institute, 164 Shaftesbury Avenue, London, W.C.2, especially *Choosing a School Projector* and *Using a School Projector*. The Institute has now ceased to deal with educational films, however, and reference should be made to the Educational Foundation for Visual Aids, 33 Queen Anne Street, London, W.1, which, in addition to publishing comprehensive catalogues of films for hire, has the function also of arranging for advice, supply and distribution services for all Visual Aids equipment—projectors, films, film-strips, etc. These services may be obtained either direct or, in a growing number of cases, through the Local Education Authority. Sources for the supply of apparatus and films are listed in Appendix VI.

Other Apparatus

Globes

3·1·1. The importance of the use of the Globe in Geography teaching has been emphasized in the last Chapter. The chief practical considerations to have in mind when choosing this essential piece of equipment, apart from the question of what is to be shown on its surface, are those of size, weight and durability.

3·1·2. The size of the Globe for effective demonstration and class use should be certainly not less than twelve inches in diameter, and much larger globes could be used with advantage. Unfortunately with increasing size come serious practical disadvantages, such as greater cost and, above all, greater weight. The weight of many globes manufactured to-day sets an unduly low limit to the size, as few teachers wish to have the globe fixed in a permanent position in the Geography Room. The Committee expresses its concern at the fragile character of most globes, particularly when they are to be used for individual work with small groups of pupils in a class. Few schools can afford frequent renewals.

3·1·3. The Committee hopes that in future it will be possible to purchase a Globe which satisfies all the teacher's requirements in the above mentioned respects. It should be possible to produce sufficiently cheaply a globe of some light alloy, of aluminium or of plastic material, 20 inches or more in diameter, which would be really useful, combining at the same time a minimum of weight with a maximum of durability. Further, since in this "air age" the teaching of great circle routes assumes such importance, there should be available a transparent hemisphere of rigid material, such as perspex, to fit loosely on the globe in any position. For its proper use a freely rolling globe, held in a cup, is necessary. As has been mentioned in Chapter IV such a hemisphere, if it has a meridian line and scale marked on it, is of great use in finding the distance along a great circle route between any two places on the globe.

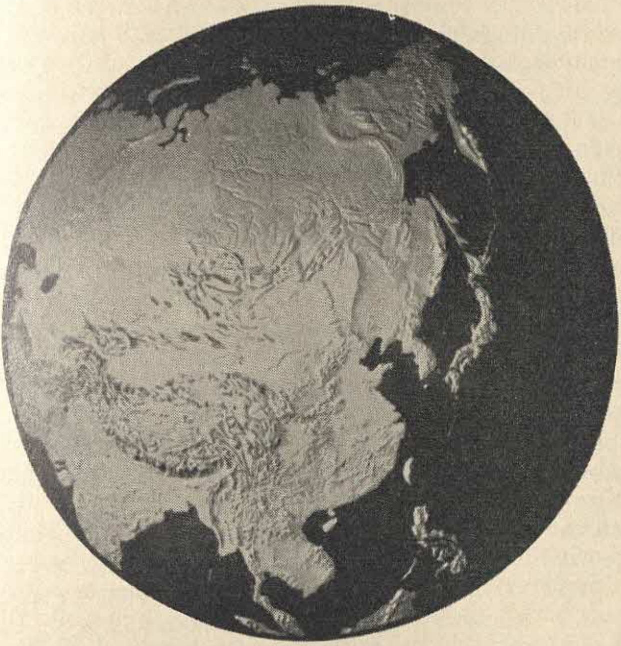


FIG. 45 – A SEGMENT OF A LARGE RELIEF GLOBE

3·1·4. The consensus of opinion among the Committee's correspondents is in favour of the "blackboard" or slate surface globe, with parallels and meridians and the outlines of the continents incised or marked in white. The globe is usually fixed on a stand showing the inclination of the axis. Many teachers, however, prefer a hanging globe suspended from the ceiling, so that by means of a spring roller or a counter-weight arrangement it can be pulled down for demonstration or for the insertion of detail. It is desirable to have a second globe on a stand as well; and a cut-away globe for demonstrating latitude and longitude is advocated by some teachers. Increasingly favoured is the "free rolling" globe mentioned above which is not permanently fixed to a stand but can be taken out of its cup support to show any desired part. Still other teachers prefer the more expensive globes with interior lighting, though it is very doubtful whether the additional cost is justified. Again some teachers advocate the use of relief model globes, layered in colours or showing elevation by shades of a single colour; others require globes coloured to show political divisions. These, however, are luxuries that can well be dispensed with, while the plain globe is a necessity: in fact, it has been suggested that the exaggeration of the relief on such globes as show it may often convey a misleading impression. Since the only true "map" of the world is a globe, the Committee looks forward to the time when every Geography Room can be equipped with a really large globe, suitably mounted, showing much of the detail of individual countries which at present can be found only on the Atlas maps.

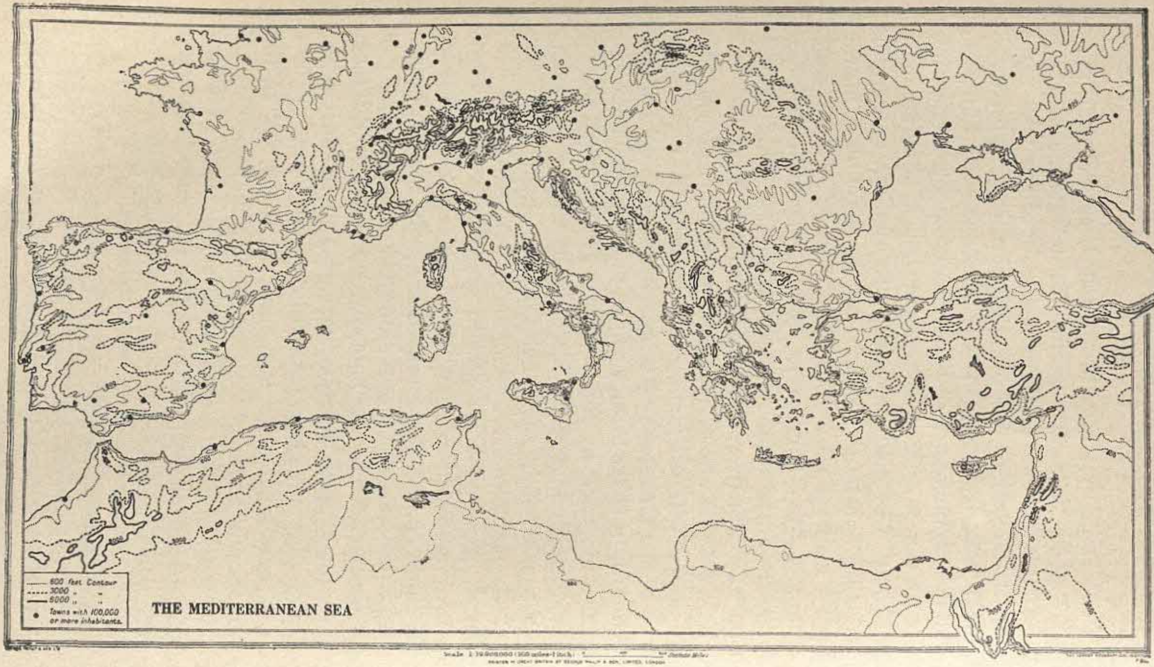
Wall Maps

3·2·1. Wall maps and Ordnance Survey maps are essential parts of the equipment of the Geography Room. Wall maps should be as large as possible and should not be overloaded with names, as it is usually impossible for the pupils to read anything but the largest type. The maps which are most important are physical, political, and climatic maps of the continents and of the world, and a series of detailed maps of the British Isles. Physical maps without names are very useful for testing purposes. If good atlases are in use there is less need for wall maps of climatic conditions, for the atlas maps may be projected on the screen by means of the episcope. A useful type of wall map is the cartridge-paper blank outline of countries or continents, or the "blackboard paper" outline map, which may be filled in with information, concerning minerals, for instance, which cannot be found in the ordinary wall map or atlas. The storage of wall maps has already been referred to, but it may be noted that the dissected type, mounted on cloth and folding flat, can be stored in the same manner as O.S. maps.

3·2·2. As has been mentioned above, a permanent world map, with the continents in outline, is a useful feature of the Geography Room. This may be on a special blackboard, in roller form, or fixed to the wall. The setting of such a map and its particular use are described by one of our correspondents: "A large world map is secured to the wall at a height such that even the smallest boy can see each part clearly. Surrounding the map is a wide border of plywood covered with green baize. The whole map is covered with perspex, on which is traced the track of the ship adopted by the school under the Ship Adoption scheme. Notes are written alongside the ports of call with details of cargoes landed and shipped, distances between these ports, times of arrival, and so on. On the border can be pinned up postcards, photos., etc., of these ports. The weather chart is pinned up at the side of the map to show the type of weather the ship may encounter." This is indicative of the wide variety of uses to which such a permanent world map can be put, especially when covered with perspex.

Ordnance Maps

3·3·1. Each school should possess a set of Ordnance



[By courtesy of George Philip & Son. Ltd.

FIG. 46 – A VISUAL CONTOUR OUTLINE MAP BEFORE COLOURING

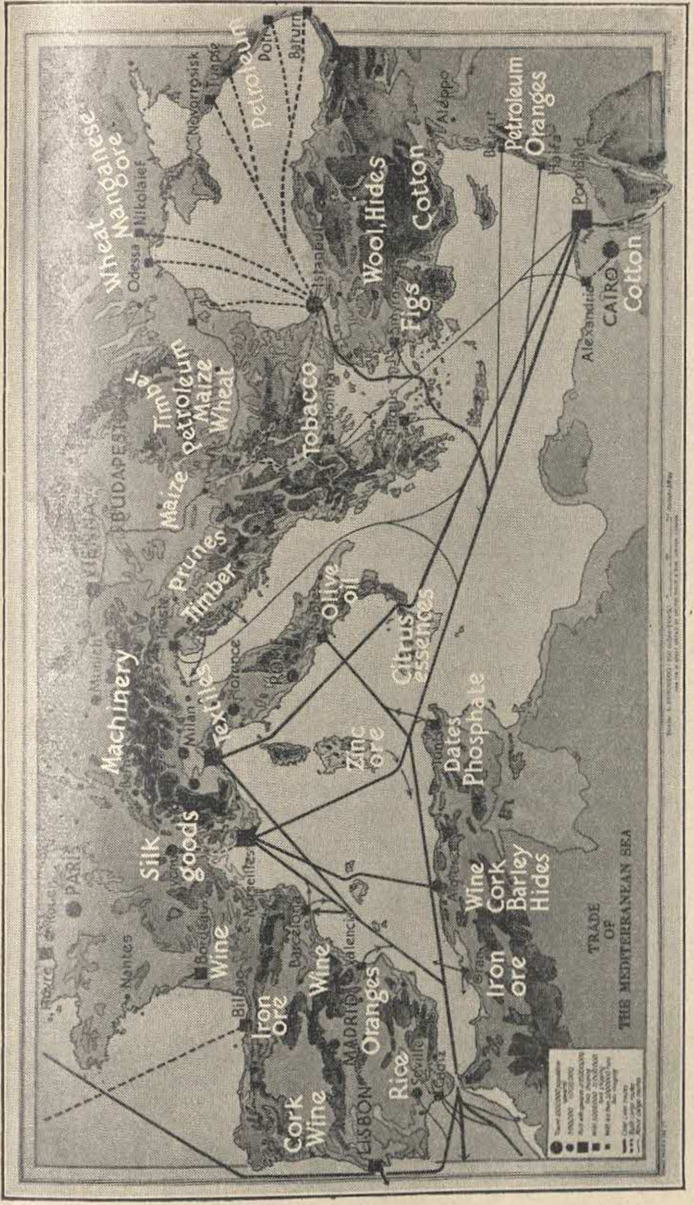


FIG. 47 – A VISUAL CONTOUR MAP AFTER COLOURING

Survey maps of the school district on the 6-inch, 2½-inch and 1-inch scales. A 25-inch map showing the school buildings, and the local Geological Survey maps on the 6-inch or 1-inch scale, will also be found useful where available. Appropriate examples of the smaller scale Ordnance Survey maps should also form part of the map equipment.[1] The half-inch map, for instance, shows the country within cycling distance and the quarter-inch the country within easy motoring distance. The 10 miles to the inch maps (so-called; they are actually 1 : 625,000) may well be obtained: they show distributions such as Types of Farming, Land Utilisation, Coal and Iron, Density of Population, etc. These maps are very useful for regional work in the British Isles and as sources for individual studies. Examples of the 1-inch district Tourist Map, such as that of the Lake District, are well worth possessing, even if only as examples of the effective use of layer-tinting.[2] All Ordnance Survey maps can be obtained from the Director-General of the Ordnance Survey, Chessington, Surrey, who will also supply particulars of the terms on which large quantities may be obtained at reduced rates for educational purposes.

3·3·2. Other maps which should be stocked are those of the Land Utilisation Survey, including that containing the school district and others in order to show a variety of types of land use. These may be obtained from *The Land Utilisation Survey of Britain, London School of Economics, Houghton Street, London, W.C.*2, or c/o *Bentboughs, Horton, Nr. Slough, Bucks.* The sets of reproductions of Ordnance Survey maps of certain areas, published by the Geographical Association with useful notes, should also be obtained. Foreign maps, too, corresponding to our Ordnance Survey maps, should form part of the equipment of the Geography Room[3].

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[1] See *A Description of Ordnance Survey Small Scale Maps*, H.M.S.O. 1s. 6d.

[2] Unfortunately nearly all these maps were destroyed by enemy action, but they are beginning to be reissued.

[3] Including, for example, those used in Carter's *Land Forms and Life*, Christophers, 1931.

3·3·3. Since the 7th Series of the 1-inch map is gradually replacing the New Popular Edition as the standard and only Ordnance Survey map on that scale for Great Britain (apart from the Tourist District maps) teachers should make every effort to replace their stocks with the new map. Old maps can be made good use of in many ways; extracts cut from them make excellent material for class use and for the episcope, and, where necessary, the new grid lines may be added to them. Interesting and valuable exercises, too, can often be obtained from a comparison of the new maps with the old. The possession of a complete collection of the new maps for England, Wales and Scotland should be the aim of every school Geography department and some schools are already attaining this ideal. Ordnance maps should be kept in the Geography Room so that the teacher may use them during normal lessons in connection with both regional and physical work, scope for which will be especially wide in the Sixth Form. Vertical filing cabinets with shallow drawers or shelves of a size sufficient to hold the largest sheets are necessary for their storage. The whole collection of maps should be easily accessible to all pupils, particularly to those doing more advanced work, for reference in connection with their reading or their work outside the classroom. Pupils should realise, too, that maps are readily available for such individual purposes as planning a holiday, a cycle tour or a ramble. Habitual use of maps in this way may become a valuable part of the geographical work.

Duplicating Apparatus

3·4. Whatever may be the general school facilities for duplication of papers, there is no doubt that the Geography Room should have its own equipment in this respect. The constant need in the teaching of Geography for the reproduction of such essentials as maps, diagrams and summaries makes it imperative for the teacher to have immediately available the means of duplication. For maps the rubber roller-die or one of its variants is most successful and reproduces good outline maps at a moderate cost. The time taken to produce by this means sufficient maps for a whole class is about one minute. It is possible to obtain rolls not only of continents but also of countries and river basins, contoured if desired, as well as tables of conventional signs and even sets of exercises. Of more general use are duplicators of the hektograph type and others, which reproduce the teacher's own drawing or writing. In some of these copies may be obtained in a variety of colours. It is desirable that such duplicators should be easy to manipulate, clean and speedy in action. The rotary type of duplicator can also be put to very good use for all purposes, although, as a rule, the cost of these machines makes it doubtful whether the Geography Room can claim one for its exclusive use. A stencil, once prepared, can be used over and over again and many thousands of copies can be produced in a short time. Stencils of continental outlines and other maps can sometimes be obtained from the makers of the machines.

Models

3·5·1. The importance and use of models have been referred to in the preceding chapter. They are usually built up in layers, cut out along the successive contour lines from sheets of cardboard or wood of uniform thickness. On each layer, of course, the contour next above must be traced, so that the layers may be fitted accurately into position. The method is described by a correspondent as follows: "A simple contour map is taken. A layer model is then made of wood by means of the fretsaw. The model is then filled up with plasticine, but the edges of each layer of wood are scraped clean. Viewed from above the scraped edges show clearly the contours. I usually place this model side by side with the contour map and also with a section drawn to scale. The great advantage, of course, is that one has a model constructed to scale actually with contours in position."

3·5·2. The method of using vertical sections, filling in the spaces between with plasticine, paper pulp, or some other substance, has been very successfully used. In making a model of Wales on the one-inch scale, section lines were drawn across the O.S. map at intervals of a third of an inch, and the sections were drawn on cardboard and cut out; then a layer of plasticine was stuck on each section so that the total thickness of board and plasticine was a third of an inch. The board and plasticine were then erected and the difficulty of filling in the spaces *after* erection of the sections was obviated. When all the sections had been erected details of surface features between the sections were modelled in. This method has obvious advantages when the map has contours at unequal intervals.

3·5·3. Several correspondents insist that the chief value of models consists in the fact that they are constructed by the pupils themselves, and indeed many boys who have once built up such a model under instruction are very willing to make them in their spare time. It is thus not difficult to form a useful collection of models showing a variety of physical features.

Wall Charts and Pictures

3·6. A considerable amount of wall space may with advantage be devoted to the exhibition of large pictures or posters and charts. As these should, as a rule, be changed at frequent intervals they are best shown in frames attached to the wall, or suspended as explained in §1·4·2 above; otherwise they may soon be destroyed by repeated pinning up. Such wall display may also include smaller pictures, post-cards, etc., pinned up, set up in specially provided racks or mounted, by slits, on sheets of brown paper which themselves may be pinned up by the corners, previously reinforced. An advantage of this type of display is that the pupils themselves may contribute largely to it, and it may include their own drawings. Pictures and charts so shown may be of general interest or may refer to a particular lesson or series of lessons. They may, too, form part of a "visual unit" which also contains films, film-strips and perhaps models. Material suitable for exhibiting in this way may be obtained from a variety of sources, such as educational publishers, Dominion and Foreign Agencies, such bodies as the International Wool Secretariat, industrial and commercial firms (illustrating, for instance, industrial products and processes), and the Imperial Institute. Travelling exhibitions of pictures and charts may sometimes be obtained on loan[1].

Samples and Specimens[2]

3·7. Apart from the more extensive and elaborate collection of the Geography Museum described on pp. 258–264, there is need for a carefully selected assortment of geological and commodity specimens, such as those obtainable from the Imperial Institute, readily available in the Geography Room. Specimens of raw materials and of manufactured articles, e.g., cotton and woollen yarns at various stages of their manufacture, can often be obtained from local manufacturing firms. In order to display these to the best advantage specimen cases of suitable height should be provided. As the quantity of specimens on show at any one time will not be large, the size of the cases may be limited, but there should be ample storage room, possibly in drawers beneath the top portion of each case, for specimens not being shown. The glass upper part of a tracing desk such as that shown in FIG. 40 on p. 229, may well serve as a specimen case when not in use for tracing, and the cupboard underneath might take specimens not on show. The contents of such show cases should be frequently changed.

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[1] See, again, the *Daily Mail* School-aid Publication, *Material for Visual Education.*

[2] See also pp. 396–399.

Meteorological Instruments

3·8·1. Since the keeping of weather records of the Home Region is vital to an understanding of climatic data referring to regions outside the experience of the pupils, it is important that all the classes in Geography should have access to a set of meteorological instruments. These should include: maximum and minimum and wet and dry bulb thermometers, preferably housed in a Stevenson screen, or in a Bilham Thermometer Screen, which is cheaper and equally suitable for use in schools; barometer and/or barograph[1]; rain gauge; wind vane. Other instruments which are of educational value, but which figure much more rarely in the equipment of schools, are grass minimum thermometers, solar and terrestrial radiation thermometers, the anemometer (the Robinson cup type is the most useful as well as the cheapest), the sunshine recorder and the thermograph. Nephoscopes and hair hygrometers may be made by the pupils; in fact the making of these instruments provides very useful lessons on the facts of climate.

3·8·2. Great care should be taken to ensure the proper exposure of the meteorological instruments used. Full information is given in the *Meteorological Observer's Handbook*, published by the Stationery Office; but whenever the teacher is in doubt as to the best instrument for use in special circumstances he should solicit the advice of the Director of the Meteorological Office, Air Ministry, Kingsway, London, W.C.2. When it is desired to establish a normal meteorological station at the school reference should at once be made to the Meteorological Office, and in certain cases, where serious work is done during holidays as well as during term, it may be possible to obtain instruments on loan. It is unwise, however, for schools which have no trained observers to attempt to establish a normal meteorological station, as the readings must be taken several times a day on every day of the year. There are schools which have kept almost complete records for the greater part of a century, but this is quite exceptional.

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[1] This should be installed in the Geography Room in such a position that there is the minimum risk of vibration or interference.

3·8·3. The graduations used on the various instruments should, if possible, conform to those used in the publications of the Meteorological Office, in particular the Daily Weather Map. The most important of these are: Temperature:—degrees Fahrenheit; Pressure:—millibars; Rainfall—: millimetres. Failing this, however, conversion tables or graphs are easily prepared.

3·8·4. In recent years the rapid variations of atmospheric conditions which occur even within quite small areas have been made the subject of considerable research, of a type well within the capacity of Sixth Form pupils. The incidence of night frost in relation to elevation and slope forms a useful topic for such an experiment, and a Geography teacher who has at his disposal a number of minimum thermometers can distribute these among pupils living at suitably situated places, so that a record may be obtained of minimum temperature distribution over the area covered. Other microclimatological studies will suggest themselves, the instruments required depending on the particular investigation.

Weather Reports

3·9·1. Many schools obtain the daily weather report and there will usually be boys in the school with wireless receivers who can decode the Morse weather reports issued at 6 a.m. and 9 a.m. by the Central Forecasting Office at Dunstable. At the present time there are three simultaneous transmissions on frequencies 2970, 4302 and 8600 kc/s with an additional day frequency during school hours of 14,895 kc/s. The 8,600 kc (34.88 metres) transmission will be found most suitable for reception in this country. The synoptic reports occur at the following times after the hour: 10 mins. to 30 mins., British Isles stations; 30 mins. to 40 mins., Aircraft and Radiosonde; 40 mins. to 70 mins., Iceland, Greenland, Scandinavia, and retarded reports. Full details of weather broadcasts will be found in a *Handbook of Weather Messages, Codes, and Specifications* (M.O.510) which contains the codes which came into use internationally on January 1st, 1949.[1]

3·9·2. After 1945 the hourly "Airmet" service was continued for several years. Because it provided weather information of value to schools, many teachers supported a parliamentary petition in 1951 that it should be restored in full. There is no reason why the school should not make its own weather forecast based upon current information instead of on the readings of the previous mid-day, published in *The Times*. This should be put up beside the readings, copied on a map of North-West Europe outlined in white paint on a blackboard. If the map is covered with perspex the forecast can be indicated on it, or, alternatively, later information can be shown for comparison with the forecast. The description of the weather and forecast can generally be left in the hands of a small group of interested pupils. There should be no attempt to make all the members of a class produce a forecast, as this may kill interest, especially as the work is done out of school hours. An additional asset for the pupils keeping the Meteorological Log is the Air Ministry's Pamphlet[2], which gives a series of pictures of the various types of cloud, with definitions and descriptions.

Apparatus for Surveying and Mathematical Geography[3]

3·10. A phrase of one of the Committee's correspondents, "Beware of eyewash in equipment," conveys a timely warning. This applies particularly to expensive instruments used in surveying, in astronomy, and in geology. If surveying is attempted in the Geography course the instruments used may be of the simplest description. Measuring apparatus, such as a chain, with "arrows," linen tape, a prismatic compass or some simple equivalent, is essential in any case. The water-level may be made quite easily in the handicraft room, as also may sighting staves. Plane tables, possibly with trough compass and alidade, and simple model theodolites may be obtained from a number of firms. A sextant is useful, if, perhaps, something of a luxury. The instruments used in sun-shadow experiments should be home-made, in fact each pupil should make his own gnomon. The meridian line should be marked on the floor of the Geography Room, for reference in the "setting" of maps as a class exercise, and there should be a number of magnetic needles available for comparing "magnetic" and "geographical" meridians. It is the practice of some teachers to mark out on the ceiling of the room not only the meridian but also the direction (and, perhaps, the distance in miles) of certain places of interest and importance, such as London. The installation of an orrery or other elaborate means of showing the earth's motions might come under the warning given above, but some simple model is useful for the purpose of demonstrating the causes of day and night and the seasons, and this may be home-made. The objection to all apparatus of this kind is that in suggesting, as it inevitably does, quite wrong ideas of relative sizes and distances, and in representing the earth's orbit as circular, it may, unless the teacher takes very great care to counteract these effects, do more harm than good.

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[1] There is much useful information in *Here is the Weather Forecast* by E. C. Bilham. (London, Golden Galley Press, 1947, price 10s. 6d.).

[2] *Cloud Forms*, M.O. 233. Published by H.M.S.O., price 1s. 3d.

[3] See also Appendix VII.

The Geography Museum[1]

Introduction

4·1·1. On the principles that (i) the ideal way of teaching and studying Geography is to "go out and see" and (ii), except for occasional excursions and the utilisation of facilities for travel and observation, the subject must be taught through the introduction to the pupil of symbolic expressions—maps, diagrams, pictures, and specimens—it would seem almost axiomatic that for this, as for many other subjects, the school museum should be of the greatest utility.

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[1] See also the Schools Museum Service, pp. 396–399.

4·1·2. In a school ideally organised, the interests of those subjects, whether scientific or literary, which are capable of illustration by concrete objects or pictures, might best be served by a museum in the form of a long gallery devoted to the demonstration of human life in its evolutionary, historical, and geographical aspects. The main gallery might begin with Astronomy at one end and extend through Geology, Pre-History, and History up to Modern Life, displaying, especially, industrial processes and materials, and exhibiting conditions of life in the regions of the world. None of these subjects could, of course, be treated exhaustively, but they could be illustrated sufficiently to show the place, in time and space, of the stages of man's development. Details, such as the natural history and resources of the home region, local industries and so on, might be relegated to side galleries. All this may well be regarded as a picture of the unattainable ideal, but it suggests a use for the long corridors that exist in many schools.

Furniture

4·2·1. Whether such ideal conditions are available or not, the greatest possible care and thought should be given to the classification and arrangement of the exhibits. Much of the educational value of a museum is lost if the specimens are arranged in a haphazard way and not according to some definite and carefully planned scheme.

4·2·2. Museum cases may be of many kinds, subject to one condition, often neglected in our museums, that nothing intended to be examined *in situ* should be within

3 feet of the floor, or, save in the case of bold diagrams, posters, etc., more than 6 feet above it.

4·2·3. One good arrangement is that of vertical sections for periods, divisions of subjects, etc., each section consisting of three parts: upper, middle, and lower. The upper part would be a shallow cupboard, with adjustable shelves and as little hindrance as possible to the view of the interior caused by the framework of the front and the glass doors. For some purposes a rather deeper cupboard with stepped shelves receding upwards might be better; and another good plan is that of sloping shelves with the specimens supported on pins. Sloping shelves are also useful for showing smaller pictures and diagrams. Picture sections, consisting of baize-covered boards, not necessarily of full width, might be inserted, as required, among the specimen sections. The middle part of each section might slope outwards, as in a secretaire-bookcase. It would have a glass front and would accommodate a sloping display board or a set of stepped shelves: the deeper bottom part of each section would consist of a set of cupboards and/or drawers, for storage.

4·2·4. Instead of standing on a sloping middle part, the top part might stand directly on the bottom part, which, whether consisting mainly of cupboards or of drawers, would have, in the front, a horizontal glass top and a display drawer underneath it. Such a drawer would be useful for temporary exhibits, and if the rest of the bottom part is a block of drawers, these should all be interchangeable with the top one. If the gallery is wide enough, its centre might contain a range of glass-topped table-cases, or, preferably, blocks of interchangeable drawers, the contents of the top one being visible through the glass: or, alternatively, there might be a double range of vertical cases, back to back.

Seating Accommodation

4·3. In any case there should be a provision of stools of the usual laboratory type. This is a matter much neglected in our public museums, from South Kensington downwards. It is often a painful process to examine the specimens for those who are short-sighted, or wear glasses with a short focal range.

Storage and Display

4·4·1. Many teachers have formed collections of pictures, specimens, and models, varying from a few odd things, casually acquired, to large and systematic collections: but the difficulty of storage in such a fashion that what is wanted for use can be immediately accessible is always acute. One teacher has during forty years acquired many thousands of illustrations, and has finally had to retire without ever having had anything like adequate room for storage and exhibition, or opportunity for utilising the material in his possession.

4·4·2. Much can be done, at the cost of considerable trouble in arranging and of time in use, with boxes of uniform size and shape, even cocoa or soap boxes, which can be stacked in a pile in a corner. If possible each should be provided with handles and stand on a couple of fillets so placed as to fit into the mouth of the box below. Such boxes should be as shallow as possible.

4·4·3. Failing proper glass-topped specimen boxes, those in which photographic and lantern plates are bought (and their lids) make convenient trays for holding such things as rock specimens. A sheet of brown paper, fitting the box, will help to keep out the dust from the tray, and relevant diagrams and pictures may be kept above. Almost any kind of boxes of uniform size and shape can be utilised.

4·4·4. If they can be obtained, specially made stacks of tray boxes, painted black, with handles and fillets, are more convenient and more economical of space. Convenient dimensions are, say, 24 by 18 inches as a maximum, with depths 3 or 4 inches and a few of 6 inches, and one or two of 9 or 12 inches for larger objects. Those that are to be at the bottom of the stack may have castors or even small plain iron wheels. Properly made wall-cases, say 4 inches deep, are not expensive. They should be dustproof, and the woodwork of the front should obstruct the view of the interior (painted dull white) as little as possible. The shelves should be adjustable, on any of the plans usually adopted for bookcases. The bottoms of the cases should be 3 feet, and the tops 5 feet 6 inches above the floor. Any cupboards above or below these heights should be used for storage, not for exhibition. Cases for this purpose can be made in the school workshops. In one case the battens used for stretching the scenery for a speech-day dramatic performance, having been specially ordered for the purpose, were afterwards used to make case-bodies and shelves. The fronts were made of picture-frame moulding to hold the glass sheets, and were hooked to the bodies of the cases.

4·4·5. Shelves may be either horizontal or sloping. Small shells, plants, and other delicate objects may be effectively displayed as follows, especially on sloping shelves. Obtain a supply of lantern-slide cover-glasses 3¼ inches square, and paint one side of each a dull photographic black, or one of the blacks used for staining leather, and cement the object on this surface with one of the *waterproof* tube glues. Particulars may be written in Indian ink on a small label fixed in the bottom right-hand corner, or even across the whole of the bottom of the glass. Sections of the collection may be separated by similar glasses painted, say, in red, with a square of 2¾ inches or 3 inches side cut from a postcard and pasted in the centre to take the titles, so that the postcard square, whatever its colour, is surrounded by a red border.

Specimens

4·5·1. A great variety of sources of supply is available.

As few people will have the opportunity of forming for themselves a representative geological collection, it is well to purchase a series from one of the well-known firms, and to supplement or expand it from personal collections or other sources as opportunity offers: or a nucleus may be formed from a selection of ores obtained from the Imperial Institute (see pp. 264-265). Archaeology, local finds, gifts, purchases, spoils of travel, may, with the aid of selected pictures, gradually form a more or less representative series. Much the same applies to collections showing commercial products, industrial processes, and life in other lands. The general rule should be to lose no opportunity: one may be even a little importunate in a good cause.

4·5·2. Specimens may be divided into two categories and treated accordingly—those which may, and those which may not, be handled by the pupils. Even rock specimens are apt to lose their edges with much handling and occasional dropping: and it is well to make a distinction between choice specimens for exhibition and rougher ones which often show natural conditions better than the former.

Conclusion

4·6·1. In all departments, the collections may at first —perhaps for years—be scrappy, unbalanced, and miscellaneous: but a time comes when it is possible to begin a systematic arrangement, and to consider the filling up of gaps. The ideas governing different people's use of such museum facilities as they possess vary greatly. Some use them casually, to illustrate occasional points in the lesson; others do their best to form series of specimens or pictures covering regions or subject-divisions; others regard them as parts of a coherent scheme bearing on the main purpose of the school's existence, the preparation of the pupil for his life, and affording an acquaintance with concrete examples of what he will later encounter in the outside world. The value set on the museum collections will be in inverse proportion to the teacher's contentment with Geography as a subject that can be adequately taught from textbooks and notes.

4·6·2. Except in rare instances, a spacious and properly equipped museum must for long be an unattainable ideal: but until it can be realised there is no need to be inactive. Much can be done and is being done, in varying degrees, to give the pupils some of the benefits arising from a more vivid and concrete presentation of the knowledge they are required to obtain.

The Use of the Imperial Institute Collections

5·1. It seems appropriate to add, as an addendum to the foregoing suggestions, a few words on the use of the Imperial Institute collections.

5.2. Before equipping his museum the teacher will be well advised to consult the Imperial Institute authorities, whom he will find very willing to help him. The Institute has a large range of samples, including nearly all the chief mineral ores, grains, fibres, gums, dyes, etc., produced in the British Empire, and these it will supply to schools at a cost, in most cases, of 3*d*. a sample.

5·3. A visit of inspection to the Institute will amply repay the time and trouble involved. There the teacher will find in pictorial form a reasonably complete Geography of the British Commonwealth of Nations, in addition to some thousands of samples of its varied products. An inspection of these will give him ideas for the equipment of his own museum, as well as for the arrangement of the specimens he is able to collect. Illustrated pamphlets describing the collections are available, besides many dealing with the production and marketing of various products. These latter, owing to the fullness and exactitude of their contents, would form valuable adjuncts to a school museum.

5·4. If his school is within fairly easy travelling distance of the Institute, and especially where it is for any reason impossible to equip his own museum, the teacher will do well to take his pupils there as frequently as possible. They will see collections of a completeness that no school museum can possibly rival. It is hardly necessary to point out how much the Geography course gains in interest and actuality when the pupils can see, and perhaps handle, specimens of the commodities about which they have heard and read, and of which they have often formed the vaguest notions.

5·5. Of course if, before arranging such a visit, the teacher can acquaint himself with the contents of any section or sections that he desires his pupils to see (and it is desirable not to attempt too much at a single visit), so much the better; but, even if he is unable to do this, he need not be deterred, for there is a very efficient staff of lecture guides whose services can be obtained upon previous application. In fact, the Institute lays itself out to encourage by every possible means and in a practical way the study of the Geography of the British Commonwealth of Nations.

The Pupil's Equipment

The Atlas

6·1·1. As has been suggested above, the most important item in the pupil's equipment is the atlas: but the need for a series of atlases properly graded and designed on sound educational principles is still not adequately satisfied. It is not that there do not exist atlases which are excellent examples of printing and draughtsmanship as well as repositories of all the information that a pupil can reasonably require; but there is a definite lack of a series, uniform in type and in the colouring and symbols used, but including an edition for advanced pupils and one with fewer maps and fewer names on the maps for the lower forms. Most atlases suffer from congestion: they endeavour to give too much information, with the result that they bewilder the pupils, particularly the younger ones. The atlas-geography, combining textbook and atlas, is an attempt to solve the last-mentioned difficulty: but the maps are apt to be too small, and, further, reference to a map not contained in the book is often necessary.

6·1·2. The following suggestions for the improvement of existing atlases have been sent in by various correspondents:

(1) More and clearer physical maps, on a larger scale, should be given. The maps should be free from minor details and hachuring, and a uniform scale of layer colouring is desirable. Very few purely political maps are needed.

(2) More climatic, regional, and economic maps, and maps showing density of population, are required for all the continents. There should be, at least, maps showing rainfall (total and seasonal), temperature (including actual temperatures), vegetation (e.g., Dr. M. Hardy's simplified scheme) and simplified geological maps. Coalfields might well be shown on all maps. It should be noted, however, that on a geological map a "concealed" coalfield can be indicated only by some distinctive shading which does not interfere with the representation of the overlying surface rocks; on other maps there is no need to distinguish between visible and concealed coalfields.

(3) The projections and scales of world maps should be more carefully considered to ensure, in particular, that the projection chosen for each map is the most suitable and the least misleading for its purpose. There is little to be said in favour of hemisphere projections, especially of the conventional Eastern and Western hemispheres; and Mercator's should, perhaps, be omitted from elementary atlases as insidiously misleading. On the other

hand a world map centred on the Pacific Ocean is desirable, and for this purpose a rectangular projection (Mercator's or Gall's) would seem to be unavoidable.

(4) A number of large scale maps of the more densely populated parts of Great Britain should be included, and more adequate treatment should be given, by special maps, on larger scales than are at present commonly adopted, to such regions as the Middle East, the North Eastern United States and adjacent parts of Canada, the Mediterranean area and Western Europe.

(5) Fewer and more carefully selected names are required on most maps, particularly in elementary atlases. Maps of India and Europe, for instance, are often much too crowded.

(6) All atlases should include blank pages for the insertion of additional maps, or strips of paper projecting from the binding, to which additional maps may be gummed. The larger scale maps may be on double pages, but in this case they should be mounted on projecting slips, by the method used in larger atlases, so as to open out flat.

6·1·3. Some of the above improvements, suggested in our earlier editions, have already been incorporated in several atlases, but they are all worth careful consideration by publishers, especially the last. The question of world projections is a controversial one and it is felt that so long as the teacher makes clear to his pupils what are the advantages and the defects of the projections with which they come in contact, there is no great danger in the inclusion—at least in senior and advanced atlases—of world maps on any of the usual projections. Certain other features of some recently published atlases show, indeed, improvements which might well be widely adopted. These include :—

(*a*) Greater clarity of detail.

(*b*) The use of distinctive colours for features represented by lines on the map; e.g., blue or grey for rivers and other inland water-ways, black for railways, so avoiding confusion between these features.

(*c*) The omission of the actual contour lines when layer colouring is used, which has the same advantage as in (*b*).

(*d*) Indication of fundamental latitudinal position by printing the Equator, the Tropics and the Circles in distinctive colours and line-forms. This may be reinforced by shading, in distinctive colours, the edges of the inter-tropical zone and of the Arctic and Antarctic zones whenever they occur.

(*e*) The introduction of distance insets to attract attention to differences in scale and relate them to distances in the British Isles. The same purpose is achieved in some cases by an inset map of the British Isles (or part of them) on the same scale as the main map.

6·1·4. At the time the third edition of this volume goes to Press the problem of the supply of atlases is a difficult one. As conditions improve, however, and a complete recasting of all atlases becomes possible, it is desirable that representatives of publishers and teachers of Geography should meet together to decide on the degree to which atlases should be standardised in order to embody all requirements for the up-to-date teaching of Geography.

The Textbook

6·2·1. A systematic arrangement and a clear, well-proportioned and interesting presentation of the material are necessary qualities in any good textbook. It should also contain an abundance of illustrations, maps, and diagrams. The maps and diagrams should not be merely a substitute for the atlas: they should be clear and as simple as the subject will allow and should contain a minimum of detail. In fact a good diagram should arrest the attention in the same way as a poster does, and should compel the reader to see only those points that it is desired to emphasize. The style of the textbook should be clear and simple, literary rather than colloquial, and should not avoid technical terms with which sooner or later the pupil will have to familiarise himself and which the teacher is there to explain.

6·2·2. In textbooks based on the regional method of approach the treatment of the subject should be as comprehensive as the scale of the book will allow, physical, commercial, political and human aspects of the subject all finding their place in it, the object being to give as complete a picture of any region as is possible: but the human interest should be predominant. The treatment should be designed to lead definitely and mainly from physical cause to human effect, without undue stress on either the physical or the commercial aspect of the subject. The insertion of an occasional chapter dealing entirely with, say, physical or mathematical Geography, may nevertheless be an advantage: it saves space later on. But perhaps mathematical geography is best relegated to an appendix. Most textbooks still work on a political basis in the arrangement of their contents, but every good textbook should stress the regional aspect of the subject. Indeed, this aspect should, as a rule, be made the first consideration.

6·2·3. Some discretion should of course be exercised in choosing a textbook from the point of view of the form or forms in which it is to be used. For the lower forms (if a textbook be used) it is essential to have a readable and attractive book which the pupil will read because he wants to do so and not because he must. Some teachers, indeed, prefer to base their teaching at this stage on the "tourist" or "explorer" method, and a book dealing with the subject from this aspect will probably be more attractive to young pupils than a more systematic treatise. All pupils are interested in stories of exploration, and in the hands of a skilful teacher such stories may be made to include a considerable body of geographical knowledge. In a good book of the "tourist" type the general treatment arises incidentally, the book recording chiefly such observations as an intelligent and leisurely tourist might make on the various countries that he visits, and therefore subordinating the purely geographical to the human aspect.

6·2·4. Some excellent modern series of textbooks for lower forms are based on the "topic" or "sample" principle.[1] The attraction of such books to the young pupil usually lies in the factual details, which need not always be of a strictly geographical nature. Such details should, however, be kept within reasonable limits so as not to distort or obscure the geographical picture as a whole.

6·2·5. Whatever book be chosen it should contain numerous pictures, not too small for clearness and really typical of the country and people. They must definitely illustrate geographical points and not be merely picturesque. It is also especially necessary at this stage that the maps and diagrams should have the simple "poster" character indicated above. The text should be interestingly written, free from long paragraphs, from involved phraseology, and from a too plentiful use of technical terms. A book that is dull and scrappy, lacking in clearness and interest, and unattractive in get-up can never achieve its aim.

6·2·6. In the middle and upper school the case is somewhat different; though much of what has been said above still applies. The book must be interesting and readable, but it will serve more as a source of information and a book of reference, furnishing a basis for collecting facts for original work on selected areas or topics. Such a book will, in addition, supply material and statistics for diagrams, mapping, and other forms of practical work, and will provide an abundant supply of exercises; and a really good and serviceable index is essential. Summaries at the ends of the chapters, containing a minimum of geographical facts for learning by heart, and skeleton maps showing a minimum number of place-names for memorising, are also useful. No geographical teaching can be sound without some such basis of facts. In their desire to get as far as possible from the old "lists-of-capes-and-bays" Geography some teachers have perhaps gone too far in the other direction, and have endeavoured mainly to teach geographical principles and to formulate generalisations, a method which has as little educational value as the old one, if general principles are not based on a sound knowledge of facts. Lastly, no topographical or other information that can readily be obtained from an atlas should be allowed to cumber the pages of a textbook.

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[1] See Chapter 4.

Map Outlines

6·3. Some form of blank or outline map is again essential to the pupil's equipment. These may be purchased in various forms, with or without contours, but many teachers prefer to use map-reproducing devices, which have been described in § 3·4, above. Excellent series of map exercise books are published and these may be used partly or wholly in substitution for loose outlines maps. Transparencies showing such distributions as climate, vegetation, minerals, etc., which can be superimposed on a base map showing relief or density of population, are useful for individual work.

Individual Globes

6·4. Opinion is divided on the question of the usefulness of small globes in the hands of individual pupils. Some teachers are of the opinion that they tend to become mere playthings and cause more trouble than they are really worth; others find them a valuable aid in teaching the pupils to appreciate the importance of the curvature of the earth in the Geography of large regions, and the significance of long-distance routes, especially sea and air routes, and also to obtain a true conception of the mathematical position of a place on the earth's surface.

The Geography Library

7·1. The proper place for the Library is the Geography Room, and it is important that space should be provided there for reference works used by senior students, as well as for stories of exploration, travel, and adventure, for descriptions of natural phenomena, and for accounts of industry and trade of a kind suitable for pupils of lower and middle forms. Room must also be found for reference maps. The difficulty of furnishing the Geography Library is intensified in an increasingly large number of schools by the need for suitable storage accommodation for films and epidiascope pictures: for it should be noted that an excellent method of using pictures is as library study outside school hours.

7·2. In most Secondary Schools there is a general school library, usually under the supervision of the senior teacher of English, books being borrowed at fixed times. From the point of view of Geography this arrangement has certain disadvantages, particularly in view of the large and often rapidly expanding collection of books and maps which cannot be placed on an ordinary bookshelf. Moreover it is almost impossible for the master in charge of the scoool library to supervise the use of the miscellaneous collection of material found in the Geography Library, unless he be a Geography specialist. Many Geography Libraries contain booklets and pamphlets issued by the Colonial Office and other Government departments, by the High Commissioners of the Overseas Dominions and by the publicity departments of the great industrial and commercial companies and transport organisations. Valuable books of reference, too, and up-to-date yearbooks should be found among the geographical textbooks and storybooks which are purchased with school funds.

7·3. In view of the large number of volumes of a heavy and serious nature that he may obtain gratis, the Geography teacher will probably use the bulk of the library fund for the purchase of books which are of real interest to pupils of the middle and junior forms. The object of the Geography Library is to foster the habit of independent reading, and this can only be effected if there are sufficient books available which are attractive in themselves. It is, perhaps, to be regretted that textbooks, though attractively illustrated and constituting an important factor in formal instruction, are seldom chosen by adolescent pupils as reading matter for their leisure hours. It is unwise, therefore, to stock the library shelves with textbooks, but at the same time it must be recognised that there is a real difficulty in obtaining other books suitable for junior and middle forms. Children of from eleven to fourteen years of age are generally interested in true stories of travel and adventure, and stories of such heroes of exploration as Livingstone, Shackleton and Scott have proved so popular in the past that it is evident that there is a large and, at present, unsatisfied demand for cheap books written round the actual experiences of real people.

7·4. It is obvious that the kinds of books needed in a library depend upon the mental ages of the readers. Hence the Geography Library of a Secondary Grammar School should be divided into three parts: (1) the Teachers' Reference Library; (2) the Advanced Course or Sixth Form Library, and (3) the General Library, open to anyone, but specially intended for the boys below the Sixth Form.

7·5. The Teachers' Library is private and may well include books selected from the bibliography at the end of this volume, that is, books mainly on teaching methods, together with those textbooks that every teacher discovers he likes best of all. The Advanced Course Library will contain a selection of standard textbooks that can be compiled by studying, with discrimination, the large number of publishers' lists. It should also contain a number of books of a more general nature, selected according to the bias of the advanced study. Finally, the most important section will be the General Library, and the teacher must be ever on the alert to discover new books and remove those that seem to be unpopular: for the main difficulty is not to fill the shelves but to get the boys to read the books provided.

7·6. A valuable help to the Geography teacher in selecting books for his subject library is to be found in the Publishers' Exhibitions, which accompany Geographical Association and other teachers' conferences and courses.

7·7. Different methods of storage and lending are used in different schools, and the most suitable method of organising the library will be determined by conditions peculiar to the school concerned. An arrangement which has proved successful is to place all books which have a general interest on open shelves to which the pupils have free access; but reference books used mainly by advanced course students are often best placed in the sixth-form room where they will chiefly be used. Where the books are kept on open shelves in the Geography Room there is always a possibility that some may be lost, but if each borrower is required to give a receipt before taking a book away, the loss is almost negligible. It is sometimes advisable to appoint form monitors to ensure that proper receipts are given and also that books are not kept out too long. Expensive books and works of reference, however, should be stored in bookcases which may be locked.

7·8. Both in the general section and in the advanced course library it is to advisable to allot definite shelves to each branch of the subject. The following arrangement of sets of shelves is an example of actual practice:

Set 1.—Principles of Word Geography—Physical Geography, Climate and Weather, Map Reading and folded Ordnance Survey maps, Plant, Animal, and Human Geography, Economic and Political Geography.

Set 2.—Books on the British Isles and Europe.

Set 3.—Books on Asia, Australasia, and Africa.

Set 4.—Books on North and South America and the Polar Regions.

7·9. Opinions differ as to whether the pupils should be encouraged to read anything which happens to take their fancy, or whether some guidance should be given by the teacher. In some schools the pupils are allowed perfect freedom of choice, but, as a rule, the teacher endeavours to give some guidance, especially to pupils in the junior forms. This guidance can be given by (i) displaying new purchases in a special place, (ii) reading suitable extracts during lessons, (iii) showing some of the illustrations under the epidiascope, (iv) inviting suggestions for new additions to the library, and (v) asking for opinions from those who borrow books. A few minutes' discussion on the merits of a particular story does much to develop the pupils' power of selection, and it is wise to encourage honest expressions of opinion. Ideal results might be obtained if the use of the library could be brought into close relationship with the general

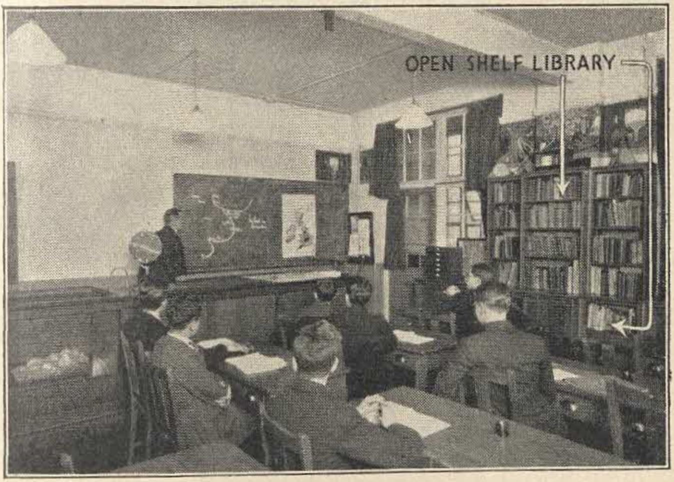

FIG. 48 – A GEOGRAPHY ROOM SHOWING AN OPEN-SHELF LIBRARY

scheme of work, but the extent to which this is possible depends on the kind of books available and also on the time which the teacher can give to planning courses of independent reading. As the reading is done in the pupils' own time, there should be no element of compulsion in the teachers' suggestions, lest the joy of independent reading be lost. It need hardly be mentioned that an adequate catalogue not only helps the pupils in their choice but also facilitates reference and makes stocktaking easy. It is advisable to have printed sets of library rules so that borrowers may know how long they may keep books and when to return them: this helps, too, to develop a "library habit."

Note on the Use of Cellophane

8·1. One of the most valuable parts of the equipment of the successful Geography teacher consists of the special maps, diagrams, sketches, etc., which he has prepared to meet the requirements of his own particular Geography scheme. The preparation of such illustrative material is a task demanding the expenditure of much time and labour. This work, however, need not be unduly laborious if the maps and diagrams used are drawn on Cellophane, for permanent use as lantern slides.

8·2. Cellophane is almost uninflammable and can be obtained in pieces of lantern-slide size. It is possible to draw on its surface with a pen, pencil, or brush, or to print from blocks in the way book illustrations are made. The Cellophane can be fixed between lantern-slide cover-plates in the same way that photographic slides are made. It may be obtained from British Cellophane Ltd., 17 Stratford Place, London W.1.

CHAPTER VI

SIXTH FORM GEOGRAPHY

1. It was a matter of common experience that in the former School Certificate year, with its crowded time-table and its examination atmosphere, the work in Geography was often so limited and compressed that the wider and more cultural aspects of the subject found little opportunity for presentation. As soon, however, as the pressure of the First School Examination was removed, the study of Geography entered upon a pleasanter phase. Under the present conditions, with their greater freedom, that phase may well be less marked; but there will still be a substantial change in method and outlook when the normal five year course is completed and the pupil passes on to more mature work. The years of the Advanced Course, with their opportunities for individual choice and original study, with their informal discussions and their friendly co-operation between teacher and taught, not only introduce the pupil to a broader conception of the purpose and scope of his work, but prepare him for the relative freedom and the personal responsibility of after-school life. These years are particularly valuable in the case of Geography, in that they enable the pupil to obtain a more intelligent appreciation of those geographical ideas which are beginning to permeate modern thought and, indeed, are necessary to the understanding of modern life. Again, if the material to be studied is carefully selected and the course planned to allow of independent work on the part of the pupil, habits of accurate observation and critical enquiry may be acquired which are of a value comparable with the best results obtained from a training in natural science.

2·1·1. Good work is now being done in many Grammar Schools beyond the standard of the former School Certificate Examinations, although there are still those in which advanced Geography is neglected, looked upon with some impatience if not with suspicion by the Headmaster unacquainted with modern developments in the subject, and perhaps with some faint-heartedness on the part of the Geography teacher. Nevertheless, as long ago as in 1887, Sir Archibald Geikie suggested the use of Geography as a discipline for advanced students, and remarked that " in a good Secondary School or higher class Public School, it is desirable to get beyond the class-book, and to enter on a wider and more independent method of study." In his enthusiasm for the study of Geography by the highest forms, the former Director-General of the Geological Survey seems to have been influenced by two main considerations—that geographical training was an efficient instrument of intellectual development, and that a coherent body of geographical knowledge was an excellent background for a cultured life. It is certain that he was not thinking of Geography as a subject of University study because, at the time when he wrote, there was only one University School of Geography (at Oxford).

2·1·2. Geikie visualised a complete course of geographical instruction as including the study of the physical, human, and historical Geography of the school locality, anticipating what we understand at the present day by "Regional Survey." He insisted that every boy *and girl* should have a definite conception of how a map is made, and though he believed that some general notions of the subject should have been acquired in the elementary stages of instruction, he was of the opinion that the advanced students should carry out a more accurate survey of the school neighbourhood on the 1/2500 scale. He also advocated the study of the effect of geographical conditions on human progress in other parts of the world. As was appropriate in an age when Classics reigned supreme in the Secondary School curriculum, he gave the tracing of geographical influences in the development of Mediterranean civilisation as a suitable subject for advanced work in

Geography. He insisted on the necessity of enforcing the truth that geographical conditions are not permanent and pointed out that the historical side of Geography presents an almost inexhaustible field of investigation. A large amount of historical and geological evidence was available to show how greatly the aspect of the country had changed since man came to live in it, and this evidence might profitably be gleaned and collected by the students from the various authorities through which it was scattered. His summary is suggestive :

"In the waste of the coast-line along much of the eastern seaboard and the gain of the land in a few other places, in the changes of river mouths, in the disappearance of hundreds of lakes, in the draining and obliteration of fens and morasses, in the clearance of forests, in the extirpation of wild animals, in the progress of agriculture, in the making of roads, canals, and railways, in the development of mineral wealth, in the establishment of the great centres of industry and population, in the growth of villages, towns, and cities —we see some of the more striking mutations which, within historic times, the Geography of the country has undergone."

2·2. More than half a century has elapsed since Geikie wrote, but the spirit of higher instruction in Geography remains unchanged, and many of his ideas are in the minds of those who plan Advanced Course work to-day. On the other hand, the influence of examinations, particularly the former Higher School Certificate Examination of the various examining bodies, has had an effect on the Sixth Form work of the present day which cannot be ignored.

2·3. The main division by which the greater part of post-School Certificate work fell into two great groups—the Humanistic Courses, Classics and Modern Studies, and the Scientific Group, Natural Science and Mathematics—at first seemed to ignore Geography as a possible Advanced Course subject. In 1917, however, the Education Sub-Committee of the I.A.A.M. passed a resolution that "Geography is the best link between scientific and humanistic studies, not only in school courses up to the age of 16, but also in Advanced Courses." In time it came to be recognised, too, that a knowledge of Geography was of great importance in the study of History. In the early Advanced Courses Geography was included as a subsidiary subject in either the Modern Studies or the Science Group, although it was still in a position inferior to that of most of the other subjects. It was not without considerable pressure and agitation on the part of the teachers, in which members of the I.A.A.M. Education Sub-Committee played a leading part, that Geography was recognised as a principal subject in Advanced Courses. Eventually the Board of Education acknowledged that Geography had a unity of its own, and Group E, the Geography Group, came into existence.

3. Just as the subject of Geography is equally important in the realms of culture and of commerce, so it is one of the aims of Sixth Form work in the subject to rectify the tendency to one-sidedness in the humanistic and scientific studies of the Advanced Courses. In the humanistic group Geography is able to provide a training in scientific method, and lends to the study of languages that greater sense of reality which comes from association with the idea of place. Taken in connection with the Science Course, Geography can be made to show the influence of scientific facts and principles on human activities throughout the world. The use of Geography as a cultural subject in connection with the Practical or Fine Arts Group has yet to be worked out,[1] but such topics as the distribution and development of the Arts among primitive peoples or the local regional distribution of types of architecture are legitimate subjects for advanced geographical work. In view of the opportunity afforded by the new examination system for a broadening of the basis of Advanced Course work, and the consequent lessening of the temptation to premature specialisation, this rôle of Geography as a pivotal subject may not appear so prominent, though it will remain none the less real and important.

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[1] But see Article by H. Robinson in *Geography*, March, 1949.

4. When we come to consider in detail the true aims of Sixth Form Geography and the consequent syllabuses and arrangement of the work, we are at once faced with a problem of some difficulty. There are at the present time at least two functions performed by the Sixth Form in the average Grammar School. It exists, on the one hand, to prepare pupils for specialisation in a subject or group of subjects, that is to say for a University Course. But under present-day conditions, especially when large numbers of Grammar School pupils are kept on at school until they are called up for National Service, the Sixth Form is bound to offer an opportunity for continuing their studies to those pupils who have little desire or necessity to specialise. For such pupils a course which aims at laying the foundations for a broad general culture is not only more appropriate but may be extremely valuable. To reconcile these two objects is no easy matter for those who are responsible for the organisation of Sixth Form work in general and of the Geography Course in particular.

The General Course

Its Aims

5·1. The claims of Geography as a pivotal subject with exceptional value for giving a general cultural background to a specialized Sixth Form course, such as one in Physical Science, or Biology, or Classics, have already been considered above and in Chapter II. The need for a corrective to the extreme specialization that is becoming more and more marked especially in the case of the sciences has been felt for some time by the Universities and, to a somewhat lesser degree, in the Sixth Forms of Grammar Schools. Indeed educationists are insisting that mere technical efficiency in a restricted scheme of study is of doubtful value, perhaps even harmful, unless the application of such knowledge is guided by a social conscience. Again, under the conditions of modern society the need for some preparation for community living, for some training in social responsibility, is widely experienced. In the opinion of this Committee both these needs can be satisfied better by a course in Geography, or by one in which Geography forms a main feature, than by one in which Geography is absent or subordinate. Indeed it appears to us that no one can be a fully educated citizen without some geographical background, without the equipment for a fundamentally geographical approach to world problems as well as to such domestic issues as Town Planning, Housing, or National Parks.

5·2. It is, however, for the large number of Sixth Form pupils who have no prospect of proceeding to a University that a general course in Geography is particularly appropriate. The broadly cultural aims of the course designed for the non-specialist are two-fold. On the one hand there is the extension of the pupil's knowledge and the expansion of his mental horizon, and on the other hand the development (or the practice) of his critical faculties and his powers of judgment and selection. These aims may, indeed, be regarded, from another point of view, as merely two aspects of the same objective, the training of a good citizen.

5·3. In the case of Geography, therefore, whilst the aims of all teaching of the subject must be to provide an intellectual and social discipline combined with a sound knowledge of fundamental geographical principles and their application, the attention of the non-specialist will be directed above all to those commercial, social, and political aspects which will best introduce him to the modern world. He should come from the course equipped with such a knowledge of the subject as will fit him to take an intelligent interest in, and to form a sound opinion on, the great problems of the day, in so far as they depend for their understanding and solution on geographical considerations; and this they often do in a marked degree. Such questions, for example, as the world's food supply, population tendencies, the preparation for self-government of colonial peoples, the dependence of Western Europe on America, the self-sufficiency of the countries behind the "Iron Curtain," international relations generally, and many other problems depend in a large measure for their right solution on a competent knowledge and a true appreciation of the geographical factors concerned. The adult who has received a proper geographical training in the Sixth Form should be able to understand more clearly the meaning of historical and political movements and to arrive at a truer scale of values with which to measure industrial, commercial, and social development. Thus the Geography course should assist in the development of a broad international spirit and in a more complete understanding of the points of view of foreign nations.

5·4. If the course is successful it should awaken in the pupil's mind a desire to discover the general principle behind particular instances, whilst at the same time it induces him to refuse to accept generalised statements without some evidence of the facts on which they are based. The careful observation of facts and the formulation and testing of generalisations ought to foster habits of logical thought and expression which should prove of great value to the pupil in later life, whether in the practice of his trade or profession or in the performance of his duties as a citizen.

5·5. It must be emphasized, however, that it is not sufficient for the teacher to plan a course on purely academic lines. He must take into consideration the needs and interests of the group and even of individual pupils. He can stimulate interest in world problems by showing films of the epic experiment in the Tennessee Valley or of new developments in the Colonial Empire; he can promote discussions on topics of current interest such as our economic dependence on America: but all this is not enough. He must provide opportunity for creative work, and, as far as possible, for the idiosyncrasies of his pupils. In other words he must base his treatment on the practical approach, and give his pupils the chance to produce as well as to assimilate and reproduce.

5·6. The knowledge acquired in the Sixth Form Geography Course, no less than the mental training, should help to equip the pupil for a career. Whether he goes into commerce or into such a profession as banking or engineering, or into one of the public services—and these are but few occupations out of many—he will constantly find a sound knowledge of Geography of assistance to him in his work.

5·7. On the aesthetic side, too, his enjoyment of home or foreign travel will be enhanced, and the benefits to be derived from it increased, if he can behold with the understanding eye of the trained geographer the natural scenery and the works of man in the lands he visits.

5·8. All these aims (and they do not exhaust the list) should be pursued in the training of the non-specialist student. They can in large measure be secured by an intelligent and judicious presentation of the facts and principles of Geography, combined with the direction of the creative activities of the pupils.

Sixth Form Method

6·1. As will be seen from the foregoing paragraphs, it is expected that the teacher will make considerable modifications in the method of his teaching and his approach to the subject when he proceeds from the general school course to take Geography with advanced pupils. Such pupils will readily respond to greater freedom and a less formal method and the teaching will be thereby the more effective. This does not mean that the teacher of Sixth Form Geography will have fewer demands on his time.

In some ways, indeed, his work will be still more exacting, particularly at the early stages of the Advanced Course, when it is necessary to spend much time and care in training the pupils in accurate and scientific methods of observation and recording, and in marking, criticising and checking the results of their first individual efforts.

Individual Work

7·**1.** The aim of Advanced Course method should be to create an atmosphere of friendly co-operation between the teacher and the individual student in the joint investigation of the many points of interest which will arise at this stage. There should be no problem of class or work discipline. The student's opinions should be worthy of serious consideration, and he should be encouraged to criticise the accuracy of the sources from which he acquires information. The teacher should abandon his reputation for omniscience and freely acknowledge his lack of knowledge on those points which he cannot explain. Whatever effect this may have upon the students, he should not be afraid of showing that he cannot answer certain apparently simple questions, for, by this method, he can stimulate a desire in the students for carrying the search for knowledge beyond what is already known and well established. The teacher will not have far to look for the opportunity to do this, *e.g.*, he can fail to keep up-to-date his notes on the production of such a commodity as mineral oil and ask some member of the class to get the missing information. This will entail a search in year-books, financial and commercial journals, and annual summaries of trade and production, and the student will frequently be left with a choice between several incompatible sets of statistics. The more trouble the student experiences, the more will he respect the work of those who have built up the main fabric of the science which he is endeavouring to study.

7·2. Great importance should be attached not only to the matter of the student's individual work but also to the method and arrangement. A valuable part of his training is lost unless he is required first to plan out his work and then to present it in an orderly and systematic form. A useful means of obtaining practice in this orderly presentation is the Geographical Essay, presented in orderly fashion and in suitable geographical phraseology, on any given topic of his subject; or it may take the form of educing from his facts some geographical principle or some interpretative conclusion. At first this individual work will be done with the assistance and under the constant direction of the teacher, but, as the course proceeds, assistance should be given more sparingly, until during its concluding months the student may be left pretty much to his own devices, the teacher confining himself to directing his pupil to the appropriate sources and to giving a general criticism of the completed task. The teacher will, however, at the beginning of the course, have drawn up a syllabus to which the student will work. The assignment method (see Chapter IV, §§ 15, 16) has been found to be of value in this connection, although in the case of the advanced pupil most of the individual work will be done in private study periods and at home rather than under the supervision of the teacher in the Geography Room.

7·3. Individual work of this nature depends for its success very largely on the resources in books and maps of the school Geography Library or of easily accessible public libraries (see Chapter IV, § 15 and Chapter V, § 7). The training involved in the tracking down of information to the relevant sources and in extracting just what is required for the student's purpose is of the greatest value not merely as a preparation for university work in Geography, but as contributing to the mental equipment of all Sixth Form pupils. But it will be obvious that to obtain such results the information must be readily available and the library facilities of the highest order.

7·4. It is beyond doubt that the practice in written work obtained through the preparation of essays and the answering of questions is of the highest value as a discipline and as a means to a fuller understanding of the subject. There still remains, however, the necessity for laying the foundations of the work in a systematic course of lessons which will be, as a rule, of the lecture-discussion type. The preparation and presentation of these lessons will form the teacher's main task; but it is desirable to vary them with papers given by pupils themselves and by occasional lectures from persons outside the school who have special knowledge of particular fields, or, perhaps, by Broadcast Talks where these may fit in to the time-table. Spontaneous and informal discussions should be encouraged, whether based on questions arising in class or on those brought by individual pupils, but it will be obvious that such discussions must be limited, lest they lead to an undue amount of desultory and uncoordinated talk and to waste of time on the part of the pupils. To guard against this tendency the teacher should prepare a careful and detailed syllabus and time-table for the course as a whole, while allowing for some free discussion, and should either do the same for each individual pupil or, preferably, require each pupil to submit his own time-table for each term's work. A useful check, too, is to require the pupil to keep a diary of work done, which the teacher will inspect and sign each week.

The Practical Approach

8·1. Although such individual activity as has already been described may be regarded as essential to advanced course work on its more academic side, it is on the importance of the practical approach to Sixth Form studies that this Committee wishes to lay particular emphasis. Whatever be the place of Geography in the course, whether it be the main subject of specialisation or taken as a more general cultural or background subject, the importance of the approach through individual studies, mapwork, field work, and, above all, Local Geography has been increasingly recognized in recent years and may now be accepted without question. Such practical work, besides giving a realistic basis to Sixth Form Geography, provides valuable opportunities for acquiring those habits of accuracy in observation and expression which, as has been suggested above, it is one of the chief aims of the course to foster.

8·2. It is assumed that the Sixth Form pupil will have had some preliminary practice in direct observational work at a more elementary stage (see Chapters III and IV). Now, however, he will be trained in collating, sifting and assembling facts, so that he may be able to present a clear and accurate report of his own observations and conclusions.

8·3. There are many kinds of Field Work through which this practical approach can be made, where the observation and recording may be entirely individual or form part of a co-operative scheme, as in Local Study. Examination and simple classification of soils, meteorological observations, the recording of cloud types, the study of local vegetation and plant associations, are a few examples among many of the type of practical work which may form a preliminary stage to a more organised and comprehensive scheme of observational study. In most work of this kind the co-operation of a few friends is desirable, if not necessary, lending, as it does, greater interest to the work, and more reliability to the results.

Local Study

9·1. The most valuable type of observational work, however, is that which forms a contribution to some well-defined scheme of local Regional Survey. Pupils should already have had experience of such a survey of an elementary character, but at the Sixth Form stage a much more detailed and thorough study of the Home District may be undertaken, involving scientific methods of observation and recording of results and forming a real training in original research. Such local study, too, forms a basis for the more detailed and advanced work in map reading and interpretation which has been referred to above and which should form an important part of the course. Indeed, the actual content of such work might be determined to some extent by the nature and variety of the sources of information which are available locally.

9·2. Each student, or small group of students, should be required to produce his, or their, own record of work accomplished and this will usually take the form of a map, the methods of recording and plotting distributions being of the kind appropriate to the type of survey which is attempted. It is unfortunate that, at the present time, few schools have had experience of regional survey work, but where it has been attempted the teachers responsible are convinced of its great educational value.

9·3. Many schools possess a varied and striking physiographic background, and in such cases the Advanced Course should include some field study in Physical Geography. The unique value of a local geographical study lies in the fact that the pupil's own work brings him into direct contact with reality. It is the only satisfactory way in which a scientific attitude of mind may be developed. In a large town there is usually access to first-hand material in Economic Geography, but the problem of giving the pupil first-hand experience of physiographic conditions presents difficulties. These difficulties may be overcome by arranging specially prepared educational visits and school journeys, such as are described in Chapter IV, § 12, and in Chapter VII, § 4. As regards access to original sources of information contained in books and maps, the schools of the large towns possess resources greatly exceeding those of the country districts, but, in any case, a careful examination of the locality generally brings to light a wealth of facts which have a geographical bearing.

9·4. In a large school, situated in the heart of the woollen district of Yorkshire, a geographical camp is held annually as part of the ordinary course, and provides the opportunity for study by actual inspection of the results of crustal folding and denudation, of local geology, of the depression of the boiling-point and the lessening of temperature and pressure in ascending a hill, of the relation between rocks and vegetation, of the relationship of communications to river gaps, and of human occupations and settlements in upland and valley districts.

9·5. It is impossible to lay down hard-and-fast lines for the individual work in Local Geography which would be appropriate in all districts, but there are several excellent descriptions of districts covered by parts of the Ordnance Survey maps, which might be used as models of the accurate description of a small region.[1] Books giving accounts of local survey of a more general and advanced character will be found in the Bibliography (Appendix V).[2] The following paragraphs give an example of what is actually being done in a Sixth Form.

9·6. It is the practice of a member of the Committee to include observational work in both years of the Sixth Form course. In the first year a study is made of the school locality on the six-inch scale; and here it is of value to have a plan on this scale specially made from the Ordnance Survey maps with the school in the centre, or else difficulty may arise because of the use of a number of contiguous sheets. Maps on a reduced scale are prepared from tracings of this six-inch plan, to illustrate Relief, Geology, Drainage, Vegetation, Communications, Historic and Pre-historic Remains, Industrial Undertakings and Distribution of Settlement. These maps are correlated by map study in the Geography Room and in the field, and thus, through a series of map reading exercises or otherwise, a description of the area is built up, with, finally, a division into regions. Further, there is opportunity afforded for actual observational Field Work in the preparation of a Land Use map and one of Use of Buildings. If this study can be combined with local climatic observations, a fairly complete picture of the school district will have been formed.[1]

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[1] Such as *The Highlands of South-West Surrey*, by F. C. Matthews (A. and C. Black), and *The Andover Sheet* (283) *of the one-inch Ordnance Map*, by O. G. S. Crawford (Oxford University Press).

[2] But note in particular *An Introduction to Regional Surveying* by Fagg and Hutchings (Cambridge University Press).

9·7. In the second year the study of a more distant and larger area on the one-inch scale is undertaken, if possible to afford a contrast to the Home District. A similar sequence of maps can be prepared, the usual type of map questions set, the distributions correlated and the area described, if possible in terms of a regional sub-division, based on map study and work in the field. In this particular case the six-inch study was of a South Wales mining valley and its mountain environment, while the contrasting one-inch study was of a completely rural area between the coalfield and the Usk valley. Occasion was taken to study in the field as many examples as possible of the land forms dealt with in the Physical Geography course. This practice gave a reality difficult to obtain merely from pictures and diagrams. The use of maps *in the field*, too, was of great importance, since it built up three-dimensional pictures and developed the power to "see solid." Geography becomes real to the field student and a genuinely practical study is the result.

9·8. It was found useful in the wider survey to stay at the hostels of the Youth Hostels Association, which is prepared to make special arrangements for parties, outside the rush holiday periods. This policy allowed a maximum amount of the day to be spent in the field and encouraged further personal expeditions on the part of the pupils.

9·9. The Committee would urge that credit should be given in all examinations in Geography for original work, especially in Local Geography. The difficulty of examining progress in local survey work carried out by individuals may be overcome if the students are required to submit notebooks containing a full record of their work. This record would be quite enough to show any experienced examiner whether the work had been efficiently carried out[1].

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[1] The variation in local climates within a small area has been discussed in *Geography*, June, 1937, by A. A. Miller.

Co-operative Effort

10·1. It will be seen from the foregoing that there is in the Sixth Form abundant opportunity for team work or work by co-operative groups, an extension, less dependent on the oversight of the teacher, of the team work at the more elementary stage. Such co-operation need not be confined to Regional Survey. It can be effective in many ways, e.g., in work farther afield, as suggested below, or in the preparation of an Exhibition, which may bring in helpers from junior forms working under the direction of their seniors.

10·2. Such local survey and other work as has been described above has a far wider appeal than merely to the Geography specialist. At this age most pupils will have 'enthusiasms' in one direction or another, some for architecture or for other of the fine arts, some for geology or archaeology, others for practical mechanical work. All these and other 'bents' can be harnessed to the survey team; and the direction of these different interests towards a common and not unworthy aim is of the greatest value to the pupils as a preparation for community living and true citizenship. When the work is carried on in camps or using Youth Hostels as centres, as mentioned in §9·8 above, the experience of living together still further enhances the value of the co-operative study itself.

10·3. Even where it is not possible to make observations on the spot, students may be encouraged to co-operate in the study of some sub-region. This can be done by asking the class to prepare a set of notes, illustrated by relevant sketch maps, on some subject such as the English Midlands. After the teacher has given general guidance as to the division of the subject-matter, the carrying out of the work may be left to the class. Each student will be expected to collect relevant material from the school and public libraries and to solicit any special advice which he may need to carry out his section of the work. Though the first results may be uneven in quality, the criticisms of the teacher will be reinforced by those of the majority of the class; and, generally, it will be found that the more indolent will be stimulated to greater efforts in the common cause. When the co-operative work is completed, it should be bound or filed for reference and used not only by those who made it but also by their successors. A variation of this method may be used in the case of foreign monographs which may be translated and summarised in English.

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[1] For a fuller discussion of this and for examples of local Survey Work see Chapter VII.

10·4. The School Geographical Society provides a valuable medium for co-operative effort. It should be managed by Sixth Form Geography pupils, who should be encouraged to organise Local Studies, on lines indicated above, or to make co-ordinated studies of particular regions other than the local one, and to present their results to the Society. They should also be responsible for arranging Exhibitions such as are described in Chapter VII, § 1. Papers should be given on subjects outside the class course, on Historical Geography, for instance, or on the lives and works of leaders of geographical exploration or research. Visiting lecturers should be invited from time to time.

Out-of-School Interest

11·1. If possible, time should also be found for members of the Advanced Course to visit exhibitions and films of geographical interest. In this respect, London schools enjoy an exceptional position for, in addition to the British, Horniman, London, Natural History, Passmore Edwards, Geological and Science museums, there is the Imperial Institute—a mine of geographical information. Within a short distance by road, rail, or water, there are also the London and Croydon Airports—object lessons in applied meteorology—Kew Gardens, where can be found examples of the characteristic vegetation of the great climatic regions, the docks of the world's greatest entrepôt, and the Rothamsted Experimental Station, where the students may learn how a knowledge of climate and soil may be used for the purpose of improving the quality and increasing the quantity of the crops on which we all depend. London, however, is not the only centre where local resources may be used to further the students' interest in the practical application of Geography. There is hardly a Grammar School in the British Isles which does not possess, within easy distance, some interesting evidence of the value of applying a knowledge of Geography to everyday affairs.

11·2. Interest in the local branch of the Geographical Association may sometimes be promoted by inviting it to hold meetings at the school. Many branch meetings of the Association are open to senior pupils and at least one large branch allows Sixth Form pupils in the Grammar Schools to join as Associate Members and has enrolled about one hundred such Associates.

Allowance of Time

12. Many of the activities described above will be carried on outside school hours but there should be opportunity within the time-table for a considerable amount of local study or other field Geography and for visits of the kind indicated in § 11·1. At present the allowance of periods to Geography in the Sixth Form is seldom adequate even for the purpose of covering the bare syllabus of the Examination taken at the end of the course, still less for preparing pupils for University Scholarships. Even when six or seven teaching periods are given each week to Sixth Form Geography it is a common experience that large sections of the syllabus must be left for the pupils to study as homework, and the amount of practical work in the field may be seriously reduced. On the other hand, under present conditions, much time must be spent by the teacher in giving, in lecture form, information which the pupil might more profitably collect for himself if time and the resources of the school library permitted. It is perhaps not too much to say that the crying need of the Sixth-Form Geography course to-day is for a wider and more generous outlook on the part of Authority, to provide both adequate time for teacher and pupil to carry out their work effectively, and adequate facilities for that wide reading which is the necessary foundation for informed and efficient citizenship.

The Syllabus

13·1. Much of what has been said above concerning the aims of Sixth-Form Geography teaching applies equally to the specialist and non-specialist courses, so that the respective syllabuses must have much in common. It is proposed, therefore, first to discuss the Sixth-Form syllabus from a general point of view and then to point out any additions or alterations that may be necessary or advisable for the specialist course.

13·2. The University point of view is clearly indicated in the following extract from a letter which the Committee received from a University and Training College lecturer who has also had experience as a specialist teacher of Geography in a Secondary School:

"Geography cannot be studied thoroughly unless some field survey or outdoor work is pursued. This provides the all-important training in observation and 'seeing for themselves.' It is far better to gain experience in the field of observation than to be making notes from textbooks later to be used at the university. Field work is admittedly difficult for schools to organise, yet it is a very necessary part of the training in outlook and in map-study, which are important parts of the subject.

"Whatever the discussions on the nature and value of Geography, it will not be doubted that Geography is first and foremost concerned with the observation of distributions over the earth, followed by the description of these, then with the mapping of them, and finally with the discussion, correlation and possible explanation of them. In the matter of distribution emphasis is laid on those which show the most important correlations with man and his activities, thus assisting in the study of the human world. Thus it follows that accurate and careful observation, description, and mapping of all kinds should be insisted on. To possess the technique of drawing a map to show any particular distribution effectively is an invaluable asset. Drawing a map is a relatively easy, if slowly acquired process, and it provides one of the ways of appreciating geographical facts.

"In addition to training in the pure technique of mapping it is important to undertake a few comprehensive and detailed studies of a regional character. For regional work one of the most suitable areas is the district in which the school is situated, for it can first be seen, and then described, mapped, and discussed. Apart from a number of such studies, purely regional work is not always desirable. Rather should more general topics be considered, such as trade routes, mountains as barriers to human movement, etc. Essays and notes will form an integral part of these studies, and it is important that both should be taken seriously in order to emphasise the importance of selection and co-ordination of material. Essays must not be mere collections of data taken from books, even though they be written in good English, but must show the action of a critical mind in handling geographical material of all kinds (pictures, specimens, travel books, statistics, etc.).

Similarly, notes must be written as an aid to memory, not as a substitute for it. Much training is needed to make pupils select the important things, and to draw sketch-maps rather than to write at length.

"Some suggestions for training the critical mind seem apposite here. Firstly, most schools possess an array of textbooks purporting to deal with 'The World' for matriculation or intermediate standard. Since these present many points of view on similar topics, and abound with misconceptions, mistakes, and unsupported generalisations, the pupil can well consider them all, indicating where one book fails or succeeds in its matter, pictures, maps, and questions. Secondly, the Daily Press provides a similar opportunity for a comparative study. Newspapers often report differently upon current events. Here a knowledge of Geography may enable the teacher and pupils to find a satisfactory conclusion to such conflicting reports by an intelligent analysis of them all.

"Some teachers find that they can use their Sixth Forms to organise their collections of pictures for teaching. In selecting, arranging, and annotating pictures the sixth-formers get considerable training in criticism. If, in addition, they are called upon to draw illustrative maps and graphs from original sources, to be used in connection with the pictures in teaching, a valuable revision of knowledge is provided. Some boys find value in collecting short illuminating extracts from 'background' and travel books.

"Many boys and girls coming to the University suffer from the evil effects of 'spoon-feeding' and too early specialisation. This often shows that the teacher, through lack of time, has had to lecture without discussion, and to force the pace along narrow lines, to the detriment of the pupils' general education. These pupils often show an unbalanced knowledge of the subject. Either they possess a large amount of unrelated detail on Economic Geography and very scanty knowledge of Physical Geography, or they may show a detailed knowledge of a few areas and have no idea of comparing those with other areas. Other frequent defects are the ignorance of the elementary facts of Geography and the failure to locate important places correctly. For instance, Liverpool is often shown at the head of the Mersey estuary, and similarly, Dundee is often placed on the Forth estuary. Further, a great many boys and girls entering the University are unable to draw *simple, clear, and reasonably accurate sketch-maps* to show geographical facts. It is also somewhat rare to receive the really well-thought-out answer, in which emphasis is laid on the few basic facts that matter.

"It is much less necessary to know that the Prairie Provinces are fertile or that Argentina has a good or suitable wheat climate (whatever these may mean), than it is to know that Australia does not lie near Singapore; that New Zealand is not near Australia, or that the eastern coast of U.S.A. runs more nearly E.W. than N.S. At this stage of learning Geography it is better to be able to draw a map of the spinning towns of Lancashire in relation to rivers, coal, and gritstone, than to be able to write a lengthy essay on the growth of the cotton industry with the time-honoured insistence on the part played by wet climate and nearness to America! There is often a tendency to confuse the ability to memorise facts in some kind of logical order, with the ability to interpret these facts with a true geographical understanding of the reality that lies behind.

"During the post-matriculation period, it is important to concentrate on mapping in order to get precision in details. Again, in Physical Geography, the content of which is readily understood by direct observation, it is better to teach it first because the implications of Economic Geography are often more complex and less obvious. There is, however, no reason why the home region should not receive detailed attention in all its aspects, because misconceptions are less likely to arise when actual observations are made in the field.

"It is clearly a difficult matter to lay down a rigid syllabus of study, for so much depends upon the teacher. There are endless ways of securing a good result. Nevertheless, it is necessary that each of the following aspects of Geography should be given a place in the scheme of work:

Physical Geography
Human and Historical Geography
Biogeography
Practical Geography
Regional Geography
Economic Geography.

The object of including these is to ensure a wider viewpoint. School time, however, will not permit of more than the study of the elementary ideas and facts in each of these branches. It is important that all conclusions and generalisations shall be supported by a wealth of particular details.

"Reference to examinations has been purposely avoided, although they have not been overlooked. Much of what has been discussed applies with special force to the first year in the Sixth, when examinations do not loom large. It is suggested, however, that the examination work will be more interesting and more readily grasped if the cultural side of the subject is stressed. For those who leave after one year in the Sixth, the important thing is to provide them with 'tools' and 'interest' by means of which they can pursue their geographical studies after they leave. The main aim of this discussion, however, is to point out what the writer feels is worth teaching, what is interesting and educative to pupils, and what is known to be a desirable preliminary to intensive study at the University. It is the kind of training which will produce a student who has a competent and critical mind, not a notetaking automaton who uses neither atlas nor sketch-maps."

In conclusion, it is suggested that a teacher should want his post-matriculation pupils to know:

(1) The major geographical facts and ideas concerned with man's activities in the world in general and in certain regions in particular.

(2) How to study any region at first hand.

(3) How to tackle the study of a far-off region, or world problem.

(4) How to select and co-ordinate geographical material.

(5) How to draw and use maps which show significant geographical facts.

The pupil must be trained in the home region in observation, description, mapping and discussion of various correlations, so that any other part of the world, any distribution or any other geographical problem will be approached with a competent and critical attitude.

13·3. The main objection to the views given in the letter is that, as the majority of Sixth-Form pupils do not proceed to the Universities, there should be a greater degree of finality in the scheme of work. Nevertheless, it is important to note that the writer is in general agreement with the Committee's view that the examinations should be adjusted to fit the kind of work which is possible in schools and that the attempt to cover an absurdly detailed syllabus by cramming kills true interest and robs the work of its most valuable result—the development of a critical attitude of mind.

The Physical Basis

13·4·1. Considering now the details of the General Syllabus in Geography itself, to co-ordinate the pupil's knowledge and to satisfy his sense of logical completeness attention must first be paid to the broad fundamental principles of Physical Geography which will probably have been dealt with only incidentally up to this stage. A brief account of the earth's structural history may introduce the scientific study of the earth's crust, which should include not only land forms and the agencies modifying them and the structure of the continents but also the oceans and their configuration.

13·4·2. As has been suggested above, the study of land forms should be based as far as possible on direct observation in the field and in any case should be closely associated with the detailed work on the 1-inch and other Ordnance Survey maps. It has, indeed, been pointed out that the close correlation of map study with that of physiographical forms gives an element of novelty to Sixth Form work, as distinct from that of the general school course, which is all to the good. In any case, the world distribution of physiographic and climatic phenomena and the main plant and animal associations should be studied and mapped, and this work might profitably be carried on along with a comparative study of such distributions on the larger scale of the British Isles. Attention should be directed to the influence of the main distributions on one another and on human activities, and here again more detailed illustration may be taken from the British Isles, for example to show the influence of land forms on climate and communications.

13·4·3. The range of established facts is much greater than can be studied during the two years spent in the Advanced Course, and it is important, therefore, that the material selected for study should include only well-established geographical principles and well-authenticated examples and illustrations. The place for the detailed discussion of such matters as the theory of isostasy, the nebular and tetrahedral hypotheses, the origin and classification of the races of mankind, the causes of cyclones and the polar front, is the University and not the Secondary School. Where questions of a controversial nature do arise it should be explained that there are many problems on which it is impossible as yet to give a final opinion. It is a good thing, however, to foster a sense of the limitations of our knowledge, and some consideration should be given to such problems as will illustrate the need for further research.

The Economic Basis

13·5·1. In the more advanced human societies man is no longer entirely at the mercy of his physical environment and, though the extent to which he can control nature is limited, his activities conform more and more to conditions imposed by his fellow men. Everything he does is influenced in some degree by economic forces; and the student can only arrive at a full understanding of the life and work of mankind if he pays some attention to the economic conditions which modify the influence of natural environment. This does not mean that the Advanced Course should include a formal study of Economics, but that the operation of economic laws should be given full weight in the study of Human Geography. Sometimes economic control is so strong that industries and trade fail to develop even where geographical conditions are favourable. The human factor in production and commerce is of great importance, and it is necessary for the pupil to understand the influence of supply and demand in stimulating the development of industries or in creating unemployment. The law of diminishing returns is also important, because it offers an explanation of the decay of many activities; and attention should be paid to the influence of geographical inertia, whereby industries persist after the geographical factors which called them into existence have ceased to operate.

13·5·2. In close connection with the study of economic principles and their application, as well as with climatology, should be taken the study and construction of maps of distributions of all kinds, including "dot" maps. Here again, as has been suggested above in the case of the study of land forms, the importance of practical map work in interpretation and illustration of general principles cannot be over-stressed. It is an interesting exercise to conclude such work with an attempt to divide the world into various types of economic region.

The General Course

13·6·1. It should be remembered that the General Syllabus is designed not only for those pupils taking a group of co-ordinated subjects of which Geography is one, but also for those taking Geography as a background subject subsidiary to a main group in Science or Arts in which it is not included. In this latter case there should be a certain amount of bias towards those aspects of Geography which throw light upon the other subjects taken in the course. Thus in the case of a Classics course time should be given to the detailed Human and Historical Geography of the Mediterranean and adjoining regions. In a Science course, the applications of science to Physical Geography and to human conditions should receive special attention. In a Modern Language course, the Geography of Western Europe and its colonies should be taken in some detail. In each case, however, the course should be one in World Geography, with, apart from local studies, special attention to some of the details appropriate to the study of the subjects with which Geography is allied in the Advanced Course Scheme.

13·6·2. Where Geography is taken in the Sixth Form for general cultural purposes and for, say, one period per week only, the following scheme might be adopted. It is based on the assumption that the pupils taking the course have a general, if elementary, knowledge of world geography, and that some of them may be attending for only one year. Each year's work, therefore, must be complete in itself, although the course is designed for two years.

13·6·3. In the First Year, the first term's work would be taken up with the "Practical Approach," considered above, in the form of an intensive study of a small area beginning with the school locality but, if possible, extending beyond this. The limits might be those of a county or of a well-defined physical region. A London school, for example, might take the Thames basin, a school, say, at Cardiff or Swansea, the South Wales industrial area, a school in a south-western town, the South-western peninsula, and so on. It might be possible, by arrangement with the history teacher, to link up the geography of the area selected with its history. When the observed facts have been duly recorded and correlated, discussions on their general bearing might usefully take place.

13·6·4. The above study might well extend into the second term, but the remainder of the second and the third term would be given up to the study of contemporary economic, political, industrial, and social problems in their geographical setting. To avoid vague and desultory treatment, certain well-defined regions should be selected and the work confined to them. Such regions are : Western Europe, North America, the U.S.S.R. and associated countries, the Middle East, Tropical Africa, and so on. The study of any two or three of these will introduce the pupil to many, if not most, of the problems that are agitating the world at the present time. Here, again, it might be possible to link together the history and geography teaching.

13·6·5. In the Second Year, the approach would be through the study of the major regions of the world, chiefly in their physical aspect, though every effort should be made to see that those pupils who have missed the first year work should gain some experience of local study. This world study would occupy the first term, and the remaining terms would continue the studies of special regions begun in the second and third terms of the first year.

13·6·6. To avoid the complete omission of local studies in alternate years, the course in such studies might be divided into two parts, one part being taken in each year, although a certain minimum of foundation work would have to be repeated annually. Thus in the case of an urban area communications and external relations might be taken in one year, population and occupations in the next. The consequent break in continuity would be regrettable but no set of pupils would be without the opportunity for some direct observation in the field. Indeed the work might well prove attractive enough to encourage one-year pupils to fill in the gaps in their spare time.

13·6·7. Many other schemes suggest themselves; some teachers, for instance, preferring to spend the two years on a gradually extending study of Great Britain or of the British Isles, others, perhaps, taking a study of the areas and conditions of production of the world's chief economic products. Whatever the details of the course, however, there should be some definite line of approach, some connecting idea which will lead the pupils to a clear conception not only of geographical principles but of their application in the life of the world to-day.

Geography and General Knowledge

14·1. It is possible that in the near future, or even by the time this Memorandum is through the press, the Universities will be requiring as a condition of entry a pass in a General Paper or one on Current Affairs. Whether this is so or not, a course on Current Affairs, or on World Affairs, is rapidly becoming a recognised feature of the Sixth Form time-table for all pupils. The proper understanding of Current Affairs depends so much on Geography that the Geography teacher must be regarded as indispensable in the planning and carrying out of such a course. He must be willing to take his full share even to the extent of being responsible for the course, if required, for by so doing he will be able to do good service not only to the pupils but to his subject, presenting his material against the background of the vital problems of citizenship. Some schools provide for a series of lectures by members of the staff on their own special interests which contribute to general culture, and here, again, the Geography teacher has his opportunity.

14·2. The following syllabus is intended to suggest lines on which a course on World Affairs might be organised. It is probable that the amount of time made available in some schools for this course might be insufficient for the whole of it to be covered; but if the study of World Affairs is to be taken seriously the work must be sufficiently comprehensive, and an adequate allowance of time should be claimed.

I. THE GEOGRAPHICAL BACKGROUND

1. *The Physical Bases.*
    - (*a*) The earth's relationships with the sun. Latitude related to variations in insolation and to lengths of day and night.
    - (*b*) The surface of the earth. Continents and oceans. High and low lands; their origin and modification by superficial agents. Coast types.
    - (*c*) The main elements of climate related to (*a*) and (*b*) above.
2. *The Major Natural Regions.*
    - (*a*) Thermal Belts related to the limits of a few important vegetation forms.
    - (*b*) The various combinations of thermal and rainfall characteristics.
    - (*c*) Modifications due to relief.
    - (*d*) Natural vegetation associated with each climatic type.
3. *Natural Wealth below the Soil.*
    - (*a*) Underground water.
    - (*b*) Rocks for building and industrial uses: building stones, slate, sand, clay, asbestos, etc.
    - (*c*) Fuels: Coal, oil, natural gas.
    - (*d*) Iron.
    - (*e*) Industrial non-ferrous metals.
    - (*f*) Gold and other "precious" metals.
    - (*g*) Uranium and the radio-active minerals.

4. *Soil; its character and importance.*
    - (*a*) Chief classes of soil, related to parent rock, climate and natural vegetation.
    - (*b*) Soil erosion and protection.
5. *Cultivated crops and animal husbandry* associated broadly with each type of natural region.

II. THE HISTORICAL AND POLITICAL BACKGROUND

1. *Western Europe on the eve of the Industrial Revolution.*
    - (*a*) Great Britain—a strong and stable society with advanced political ideas and institutions, and showing a high degree of correlation and integration of political, social and economic factors.
    - (*b*) Europe.
        - (i) Relatively backward—the Enlightened Despots.
        - (ii) Key position of France, a "giant among the nations." Geographical advantages in the pre-industrial age — unity, fertility, power and population.
        - (iii) The shadow of the French Revolution.
2. 1750-1870.
    - (*a*) Great Britain. The Industrial Revolution.
        - (i) Coal, iron and steam—the significance of mechanical power.
        - (ii) Break-up of the old balanced economy.
        - (iii) Random growth of an industrial state.
        - (iv) Raw materials and manufactures.
        - (v) Wealth and population—the "workshop of the world."
        - (vi) The triumph of *laissez faire*.
        - (vii) The loss of America and the making of the second Empire.
    - (*b*) Europe and the World. The growth of the nation states.

    - (i) The French Revolution and the Napoleonic Wars.
    - (ii) The Holy Alliance and the influence of Metternich.
    - (iii) The rise of the military monarchies and the overthrow of France.
    - (iv) Growth of the United States.

3. 1870-1914.
  - (*a*) Great Britain. First steps towards a planned society.
    - (i) Free Trade and the ruin of British Agriculture.
    - (ii) The "shift" in the content and direction of trade and manufacture.
    - (iii) The growth of collectivism. Trade Unions, Socialism and the Co-operative movement.
    - (iv) The significance of gold.
  - (*b*) Europe and the World. The rivalry of the nations.
    - (i) Politics, economic and personal ambitions.
    - (ii) The meaning of the German Empire.
    - (iii) Raw materials and markets—the struggle for Africa.
    - (iv) The Triple and Dual Alliances.
    - (v) The South African War and the Triple Entente.
    - (vi) "Weltmacht oder Niedergang."
    - (vii) The United States.

4. 1914-1945. *The Age of Violence.*
    - (i) The First World War.
    - (ii) The Russian Revolution.
    - (iii) The League of Nations.
    - (iv) Boom and Slump—the crisis of 1931 and its significance.

- (v) The rise of the dictators—Mussolini, Hitler, Stalin.
- (vi) "Autarky" and "lebensraum".
- (vii) World trade, exchange and currency.
- (viii) The Second World War.

5. 1945 *and After.*
   - (*a*) Great Britain.
     - (i) The problems of a new economy—its basis.
     - (ii) A debtor, not a creditor nation.
     - (iii) Our resources—farming, coal, iron, waterpower. Atomic energy development.
     - (iv) Re-orientation of our industries.
     - (v) Importance of Ireland in a balanced economy for the British Isles.
     - (vi) The "welfare state" and its impact on our political system.
   - (*b*) Commonwealth and Colonial Development.
     - (i) The significance of the British Commonwealth.
     - (ii) The British and other Colonies.
     - (iii) Trusteeship and the future of Colonial Government.

III. THE WORLD TO-DAY

1. *Politico-Economic Units and Groups.*
   - (*a*) Non-Self-Sufficient Units.
     - (i) Depending mainly on primary industries, producing excess of food and/or raw materials for export in exchange for manufactured goods, e.g., Argentina, Denmark, Indonesia.
     - (ii) Depending mainly on secondary industries producing excess of manufactured goods for export in exchange for food and/or raw materials, e.g., Gt. Britain, Belgium, Germany, Japan.

(*b*) Incompletely self-sufficient Groups, producing a large variety of foods, raw materials and manufactures, but lacking some essentials, *e.g.*, British Commonwealth. British and other Overseas Territories.

(*c*) Largely Self-supporting Units, with sufficient production of food, raw materials and manufactured goods for the greater part of their needs, e.g., U.S.A., U.S.S.R.

2. *Problems of the Day.*

Apart from their long-term aspect many of these will be topical, but some should be regarded as of essential importance, e.g.:—Post-War Europe, the Economic Breakdown of Western Europe; Russia—her strength and weakness—her relation to Western Europe; the rôle of the United States; the rise of nationalism in Asia; Africa to-day; the United Nations. Other topics from which a selection might be taken are:—Incongruity and transient nature of wartime alignments and alliances; Economic, political and ideological factors and their unnatural relations; the Problem of World Trade and Currency (perhaps for Advanced Pupils only); the Undeveloped or Under-developed World; Distribution of population and population tendencies, including problems of displaced persons and refugees, and of over-population; World's food shortages—causes, present position (soil erosion, etc.); Political distribution of power resources (water, coal, oil, uranium, etc.)—with a topical side-issue: power versus scenery—discussions in the press on opencast mining, electric power lines, hydro-electric development in Scotland, N. Wales, etc.; Relations between Australia and Asia; the Importance of the Polar Regions; the Interest of the U.S.A. in Undeveloped Regions; and so on.

14·3. As regards Current Affairs, properly so called, it would clearly be foolish to attempt to give a general syllabus when the subject matter must be continually changing. The method of conducting such a course will be as full of variety as the topics considered. Now a film will be shown and discussed, now a newspaper report or leader will be studied. Now a talk will be given by the teacher, now by one of the pupils; or, again, the class will resolve itself into a discussion group. By such varied means keen interest is preserved and pupils not only gain knowledge of the vital problems of the day but learn to express themselves intelligently concerning them.

The Specialist Course

15·1·1. Much, if not all, of the above discussion of the content of the non-specialist syllabus applies with equal force to the specialist course. Indeed, to judge by the quotations from the University lecturer's letter, there would be little need to distinguish between the two. As will be seen later, it is not only expedient in most cases but is frequently even advisable to combine the courses for part of the time. And yet the pupil who aspires to the profession of Geographer will clearly need to give more time and attention to the subject than the pupil who has no intention of proceeding to the University. It is reasonable to expect from him more detailed knowledge, more power to apply the general principles he has studied side by side, it may be, with the non-specialist to a variety of particular instances: and this will necessitate on the one hand a considerably more detailed study of some special region or regions, and on the other a wider acquaintance with geographical literature. He should, too, acquire a greater degree of skill in practical work, *e.g.*, in the preparation of distribution maps, greater knowledge of and practice in the methods of research and of independent study, and more power to select, assemble and interpret his facts.

15·1·2. There are several difficulties in the way of providing a special course for the pupil who wishes eventually to take Geography at the University. The most serious are those connected with school organisation. However desirable it may be that the two courses, the specialist and the general, should be kept distinct, it is rarely possible to effect this in actual practice. Shortness of staff requires that not only specialist and non-specialist but frequently, also, first and second year Sixth Form pupils must be taught together. It may be pointed out, too, that a prime necessity for advanced work in Geography is a well-equipped library, and here, again, efforts towards economy have had an injurious effect in restricting or delaying the purchase of books.

15·1·3. A type of restriction which applies particularly to the Specialist Course is that which is imposed by the requirements and regulations of the various Universities and Examining Bodies. The Universities vary greatly in the importance which they attach to the study of Geography at the University stage. Some recognise Geography only as a subsidiary subject for a degree in Economics or Commerce, while in others it ranks as a principal subject in the honours schools of either Arts or Science. The varying extent to which the subject is recognised as a study of University rank presents a definite obstacle to the extension of Geography teaching in the Sixth Forms of Grammar Schools. At one University the subject could be taken in the Arts course, but only on condition that a credit standard in Latin had been attained at the School Certificate Examination. At another University, an honours degree in Geography is conditional upon the attainment of an honours standard in Geology. With the removal of these and other inequitable conditions, there should be a great increase in the number of students who take Geography as their principal Sixth Form subject. The Committee would commend to the various Examining Bodies the desirability of including Geography in each of the appropriate Groups into which the subjects are divided for purposes of qualification for University entrance.

15·1·4. Again, the type of Geography question set in the Higher School Certificate Examination was, in several cases, such as to foster a narrow and special rather than a broad and catholic outlook. Questions were set which demanded such highly specialised knowledge of a particular subject or region that it was impossible for even an able pupil to answer them unless he happened to have had special facilities for a detailed study of the subject concerned. There should be no need for cramming in the Sixth Form Geography course, and the examination should contain a sufficiently large choice of questions of a general nature to allow of a candidate's reading widely and freely.

15·1·5. Although primarily intended as a general course in Geography, the work done in the specialised group should generally be sufficient to cover the requirements of students who propose to enter a University to read for degrees in Arts, Commerce, Economics, Government and International Relations, and Science as well as of those who intend to become candidates for the executive grades of the Civil Service and the Local Government Services. The re-organisation of the school examination system has done something to eliminate the difference between the requirements of specialists and non-specialists. In the second edition of this Memorandum attention was drawn to the need to plan a suitable course for the large number of Sixth Form pupils who had no intention of proceeding to a University; but with the re-organisation whereby the school leaving examination is taken at *ordinary* and *advanced* levels, the differences of syllabus between the two levels will be of degree and not of kind, and there will be a general recognition that even at the *advanced* level the necessity for laying a foundation of general culture will not be lost sight of.

Course of Study

15·2·1. As it is clearly impossible, apart altogether from examination conditions, to study the whole world in the detail that is to be expected of an advanced student, selection of some region or group of regions for intensive study is necessary. The choice of a special region will depend so much on the teacher's own predilections and training that no attempt will be made here to suggest a detailed syllabus for the specialist. A region of interest at the present time would be the N. Atlantic Basin with its bordering countries, but the Eastern European Countries with Asia would also make a combination well worth special study.

15·2·2. The study of general principles of world Geography will cover very much the same ground for specialist students as it does in the more general course; and, indeed, as we have seen, there are difficulties in the way of separating entirely the specialist from the non-specialist course. It is perhaps not altogether desirable, in any case, to attempt complete separation, for it is conceivable that both specialist and non-specialist may gain from association with one another in a part of the course. At the same time it is quite practicable to amalgamate the courses in the earlier stages, particularly as the non-specialist course is usually required for one year only.

A Combined Course

15·3. Taking every consideration into account, therefore, the Committee suggests a syllabus in which the first year would, on the whole, satisfy the requirements discussed above for a non-specialist course on a broadly cultural basis, whilst the second year would provide for the wider application of principles and methods, and the more advanced and more detailed study of regions necessary for the specialist.

First Year

1. *General Principles of Geography*, Physical (land forms, etc., the oceans, climatology, biogeography) and Human (including economic and political geography), as indicated in §§ 13·4 and 13·5 above; together with practical map work of all kinds.

2. *Local Geography*, including regional survey work and local Ordnance Survey Map studies.

3. *Geography of World Problems* as suggested in the World Affairs syllabus, § 14·2, part III. If, as is often the case, it is possible to separate the specialist from the non-specialist pupils for part of the time-table, it is here that the specialist would begin his more intensive study of a selected region. It is also at this stage that the *British Isles in Detail* might be dealt with, but this would depend on the extent to which the regional study of the British Isles had been taken in the general school course.

Second Year

1. A further treatment of the general principles with more advanced map work.

2. Further detailed study of prescribed regions, which should include the British Isles, if they have not been studied in the first year.

The Sixth Form Geography Teacher

16·1. There is probably no subject of the Sixth Form curriculum which demands more of the teacher than Geography. In addition to possessing to a high degree the quality of adaptability and the power to work *with* the pupils which are required of all who teach the Sixth Form, it would seem that the Geography teacher should have a wide knowledge of the world and what is going on in it and an acquaintance with some, at least, of a wide range of subjects outside his own speciality, such as Physics, History, Economics, Biology, Anthropology and Soil

Science; above all he should have the adventurous spirit, the courage to launch out in new directions, to explore untrodden ways. From the very newness of the subject as advanced course study there is more need and more freedom for the teacher of Geography to refuse to be bound by a traditional and meticulously detailed syllabus, such as so often confines the old established subjects of the Sixth Form curriculum between rigid and hampering limits.

16·2. All this may seem a counsel of perfection and indeed this Committee does not expect a teacher of advanced Geography to possess the qualities of a superman: but it is worth while having a high ideal in view. The reward for the intensive and extensive preparation and for the devoted work entailed is great. For there are few who can offer a greater contribution than the Geography teacher towards helping the senior pupil to develop a mind well stored with knowledge of the human environment, trained to observe with accuracy and explore with courage, and fitted to play a useful or even a leading part in the social and political world of the future.

CHAPTER VII

GEOGRAPHY OUTSIDE THE TIME-TABLE

I. The Geography Exhibition

1·1. A useful means of stimulating interest in Geography, not only in the Geography classes and in the school generally, but also amongst the pupils' parents and the outside public, is the Geography Exhibition.

1·2. The success of such an exhibition depends upon the observance of certain conditions in its organization:

(i) In the first place it should take place periodically, preferably annually, so that its recurrence is looked for and interest is maintained.

(ii) In the second place it should be concerned with a single continent, region, or political unit, or with some topic of geographical interest: thus dissipation of attention is avoided and the educational value of the Exhibition enhanced.

(iii) Finally, it should, if possible, form the culmination of the work on a particular continent or region of one or more Forms.

1·3. By arousing general interest in Geography, then, and giving pupils in the Forms concerned a definite object to work for, the Geography Exhibition provides a valuable stimulus to the teaching of the subject in the school. But such an exhibition performs another important function, particularly in the case of country schools, in helping the Secondary School to take its place as a cultural centre in the life of the district in which the school is situated. This is emphasized when the Exhibition is thrown open not only to the general public but also to classes from local Primary Schools and other Secondary Schools, under the guidance of their teachers.

1·4·1. The nature and purpose of Geography Exhibitions will be best seen from an account of one of a series arranged at a Lancashire County Grammar School. The Exhibitions were held each year on Speech Day but were kept open for a few days after that to allow of visits from neighbouring schools.

1·4·2. An Exhibition of *Local Geography* contained:

1. A collection of maps, one-inch, six-inch, and twenty-five-inch O.S. maps of the district, some borrowed from the local surveyor's office, and including, by way of comparison, a six-inch map of the district published in 1847 and borrowed from the Reference Library of a neighbouring town.

2. A six-inch "layer" model of the district, prepared by the pupils, and a one-inch model of a wider area, lent by a neighbouring school.

3. Six-inch maps of the Geological Survey, with specimens of local rocks and erratics. (The fact that a small scratched erratic boulder was labelled as having probably been brought by ice from the Lake District, perhaps 30,000 years ago, was seized upon by the local newspaper as interesting "copy").

4. School rainfall and temperature records and rainfall records lent by the neighbouring waterworks authority.

5. Maps showing the results of school land-utilisation surveys.

6. Statistics and information provided by local officials.

7. The diary of a local farmer, dating from about 1800.

8. The most prominent and important part of the Exhibition was the exhibit of samples of products of some dozen manufacturing firms of the district, including samples of cotton to illustrate all the stages from the raw cotton to the spun yarn, of bleached cottons, of towels and towelling, of silk and rayon yarns and materials. There were also exhibits to show all the processes in the manufacture of paper from wood pulp, specimens to illustrate the making of building bricks, fire bricks, and earthenware,

illustrations of different types of locomotives, and several other industrial exhibits.

1·4·3. The arrangement and "display" of the trade exhibits was useful training for the more artistically minded of the senior pupils.

1·4·4. An Exhibition on *Africa* followed rather different lines. Pupils' work included "picture" and "climate-graph" maps, a series of transects, and a relief model. Samples of products obtained from the Imperial Institute and elsewhere were arranged according to their regions, with pictures, posters, picture postcards, and literature from African Agencies and Government Departments, from the Empire Marketing Board and other sources. Curios and examples of native metal and textile work, furniture, and musical instruments from the Gold Coast, Masai weapons and shield, leather and wool work from North Africa, and other specimens were lent by past and present pupils and by members of the staff. A complete Hausa costume was worn by one of the boy stewards. Examples of work done by school children of the Gold Coast and of African students were also shown.

1·4·5. This Exhibition was visited by classes from half a dozen Elementary and Senior Schools and from a neighbouring Grammar School, about 300 children in all.

1·5. It will be obvious that in a large school with a well-equipped Geography Museum such an Exhibition could be both more easily prepared and more extensive in its scope; but much of the value of the Exhibition is lost unless the co-operation of the pupils is allowed to play an important part in its preparation.

II. School Geographical Societies

2·1. Geography, properly taught, should and does arouse an interest in boys and girls of all ages which is not confined to the classroom, and this out-of-school-hours interest and activity is best maintained and co-ordinated by the formation of a School Geographical Society or Association.

2·2. Such a society is, for various reasons, not found in every Secondary School. Nevertheless, in a large number of cases there is an organisation of some kind under whose auspices interested pupils find opportunities for extending and applying their geographical knowledge, where attention is paid to those aspects of the subject which are not dealt with in the classroom, and much useful and even valuable work is carried out.

2·3. In some schools the geographers form merely a section of a larger Society covering a wide range of out-of-school activities, and their share may only amount to a few lectures and an occasional expedition. Other schools have a Field Club or a Regional Survey Club. But it is only in a properly constituted autonomous Geographical Society or Association, as it may be called, that out-of-class activities in Geography can have their full scope.

2·4. It is preferable that such a society should be "run," as far as possible, by the pupils themselves, under the guidance of the master in charge of the subject; or it may be governed by a committee composed of pupils and members of the staff. Some successful societies, however, usually in small schools, are under the sole governing authority of the Geography master.

2·5. The size of the School usually dictates the number of members and the degree of selectivity imposed. Where the main activity consists of lectures there is usually no restriction, but some Schools fix a maximum membership, some restrict membership to the Upper School, and there are instances where "once a member always a member" is the rule, and in consequence the meetings are open to Old Boys.

2·6. It is wise to deter the boy who will turn up to lectures but is not prepared to share in the "donkey work". As a rule a small charge for lantern lectures, which helps to swell the Society's funds, is quite efficacious. In one Society a committee elects new members, who have to purchase the Society's badge, and present a book to its Library. Far from limiting the membership, as might be supposed, this society, which has the "once a member always a member" rule, numbers 150.

2·7. Meetings held immediately after School, once a week or once a fortnight, are usually the most convenient, but if Old Boys play an active part, a later time may be better, such as 7.30 p.m. on the second Friday of the month or some such recurring date.

Suggestions for Geographical Society Activities

1. *Indoor Work during the Winter*

2·8·1. This may take various forms, such as:

(i) Discussions and debates by pupils.

(ii) Lectures by masters, pupils or outsiders such as travellers, explorers or specialists.

(iii) Practical work.

2·8·2. The interest and value of lectures is greatly enhanced by the lantern, episcope or film-strip projector. Boys who may be diffident at the idea of lecturing *per se*, often gain confidence and a greater technical mastery of their subject by using the episcope and providing their own illustrations. The Society should have available the names of firms who supply such material, either as their business or as a means of advertising their products.

2·8·3. A Society fortunate enough to have the use of adequate premises can provide its members with a priceless opportunity for utilizing the children's creative energy, which under modern conditions is so often frustrated. A wide range of practical work can be undertaken, much of which can if necessary be used to help ordinary classroom work. Special maps may be made, sets of pictures for the episcope assembled and catalogued, relief models built up, meteorological records made up and checked, and plans and data for outdoor work in the summer holidays prepared and explained.

II. *Outdoor work during the Summer*

2·9. In the summer term, indoor work may cease to attract even the most enthusiastic members of School Geographical Societies. Activities are thus usually confined to half-holidays and vacations. Factories may be visited, or other organised visits paid to town or country, or some form of Regional Survey may be attempted. Such work will lead naturally to the wider activities dealt with fully in the later sections of this chapter.

2·10. It is possible occasionally to link up the work of the School Society with that of the local Geographical Society or branch of the Geographical Association. Thus a joint meeting may be arranged, for a lecture or discussion on a subject of interest to persons of all ages, *e.g.*, "The Youth Hostel Movement in Germany," or "The Port of London." Sometimes pupils of Secondary Schools in the neighbourhood of a branch of the Geographical Association are admitted to lectures arranged by the branch, with or without the payment of a small fee. Senior pupils who are specially interested in Geography may, as has been suggested (p. 294 § 11·2), become student members of the Association at a reduced subscription.

III. Local Studies

3·1. It is now generally recognised that the study of Local Geography is an invaluable method of developing a pupil's powers of observation and deduction, and of fostering his initiative, but, while recognising this, many Geography teachers feel that they cannot conscientiously afford adequate time in the curriculum for an application of their subject which may demand much careful study and even research on their part, and for which room must be found in a syllabus which is already very full: for which, moreover, little recognition has as yet been obtained from Examining Bodies.

3·2·1. Objections have been made that inclusion in an Examination Syllabus would cramp and stereotype methods of Local Study, a result which would be particularly undesirable in a subject which by its nature requires the greatest possible elasticity and freedom of treatment. Nevertheless there is a growing body of opinion in favour of its inclusion if an acceptable scheme can be formulated.

3·2·2. But, granted its desirability, the question arises: "How is the examination to be carried out?" The chief difficulty is found, perhaps, in the extent of the area, and the variety of the regions within it, from which candidates for a particular examination are drawn. No examiner could be expected to possess the encyclopaedic knowledge required to do justice to candidates coming from the many different centres in such an area. Again, it is obvious that no questions of universal applicability can be set, even though this was proposed by certain Examining Bodies for 1951. Such vague questions as "Give an account of the topography within *x* miles of your school" confer considerable advantages on some schools as compared with others. One suggestion for overcoming the difficulty is as follows:—

Schools might be classified into a number of types according to their opportunities for study, and questions could be adapted to suit the various types. Such types might include:

(*a*) Schools in the Metropolitan area. (It has been suggested that all schools in this area should study "Greater London.")

(*b*) Schools in large industrial towns.

(*c*) Schools in sea or river ports, or within easy access of the coasts.

(*d*) Schools in small country towns or in rural areas.

3·2·3. Other suggestions for solving this difficult problem are based on submission to the Examining Boards by the schools of (*a*) their Schemes of Work in Local Geography with a summary of the chief geographical features of the area and, perhaps, comments on important local distributions, and (*b*) a series of local maps on the six-inch and/or the two-and-a-half-inch scale. The setting and marking of the questions might then be dealt with by one of the following methods:—

(i) Schools might submit, in addition to their schemes and maps as suggested above, a comprehensive list of possible questions on their area from which the examiner could make a selection. These could be marked by the teachers themselves, subject to revision and assessment by the examiners, or by the local examiner, as described below.

(ii) For each local area an examiner (or examiners if more than one qualified person could be found) familiar with the area might be appointed. He could set the questions for the locality—on lines prescribed by the Board— and mark them: or he could supervise the setting and/or the marking by the teachers concerned. Where the areas covered by different Boards overlap, one man or group of men would act in this way for all the Boards concerned.

(iii) The local examiner or examiners might visit the schools and conduct oral examinations which would take the place of written questions.

(iv) Pupils' note-books might be submitted to the examiners and credit given for their style and content. The inspection of these could be the work of the local examiner.

It is to be noted that most of these schemes would require a considerable increase in the number of examiners, which might make their immediate adoption seem impracticable, at least to the larger Examining Bodies.

3·2·4. It has been pointed out in a previous paragraph that in drawing up their schemes of Local Geography teachers choose areas of very varying extent. This, of course, complicates the question of formulating an Examination Syllabus. But perhaps the Local Government area will, on the whole, commend itself as the most convenient unit, with possible exceptions in the case of such large and complicated areas as Birmingham and Manchester with their almost overwhelming choice of material. But, accepting for the present the Local Government area as the least contentious, a syllabus framed on some such lines as those given below might serve. It should be noted, however, that not all the topics mentioned would be suitable for the younger pupils, and that every school will naturally choose those that are best illustrated in the area in which it is situated. But if Local Geography is taught throughout the school, as doubtless it would be if it became an "examination subject," most of the essential topics should have been covered at some stage of his progress by a pupil who has passed through the Sixth Form.

Suggested General Syllabus of Local Geography

3·2·5. The area of the region and its boundaries, spot heights, bench marks, contours from a large-scale map, outlines of methods of construction of such a map.

Position: latitude and longitude, position in relation to larger physical and political units, involving use of various smaller scale maps.

General physical features and their relation to communications, individual physical features of special interest, geological structure and surface deposits in relation to local land forms, minerals, soils, and water supply.

Hydrography: the sea, rivers, lakes, canals and their uses, or the relation of the district to the nearest water features.

Climate: local wind, rainfall, temperature, sunshine and cloud observations, general influences of local climate on human life, e.g. on hours of work, interference with work and play, illustrated mainly by comparison with contrasting districts.

Local vegetation, natural and cultivated, relation to soil and climate.

Crops—or in towns, gardens and open spaces. Beauty spots, trust property, woodlands, their importance and preservation. Animals, preservation of wild life. Land utilisation map.

Occupations: factories, farms, mines and workshops; hours of work and routine; transport of food; origin of raw materials; distribution of finished products; communications. The basic human needs: food, clothing, shelter; shops and how they are supplied; wholesale and retail trade. General summary of occupations. Distribution and growth of population.

Public services—water supply, gas, electricity, sewage disposal, education and health services.

The Civil Service and its work—posts and telephones.

Rates and Taxes—what they pay for, and how collected and used.

Factors influencing the development of the district, especially in towns. Present condition of the people as compared with other parts of the country. Relations with neighbouring towns and villages. Town planning and its uses.

Organisation of Local Surveys

3·3·1. To be most effective, the organisation of local surveys should be carried out by the co-operation of several schools, although surveys by individual schools, especially in country districts, may produce valuable results, both educationally and otherwise. If there is a local branch of the Geographical Association in the district, its aid should be invoked in drawing up the preliminary scheme of work, in preparing the base maps, and in co-ordinating and publishing the results. If there is no local Geographical Society, advice may be obtained from the Institute of Sociology, Le Play House, Ledbury, Herefordshire. It is advisable to communicate the results of any important local survey to the Town Planning Committee established by the municipal authority or district council. In the organisation of work on co-operative lines it is important that a small but strong and representative committee be formed to organise the preliminary stages of the work, and this committee should be given the power to co-opt individual members for special advisory duties.

3·3·2. A preliminary notice should be issued to the schools which have agreed to co-operate, and arrangements should be made by the Central Survey Committee for preparing hektographed or cyclostyled copies of the base map of the district. As a rule this will consist of the salient features of the six-inch map of the area divided into school districts—each school being responsible for its own locality. It is also important that, as far as possible, the area examined by each school should form some definite physical or "human" unit, such as a particular section of a valley, a farm or village, an old manorial area, or an industrial unit such as a colliery or steel works, with its surrounding dwellings. Outdoor work should be mainly confined to the district immediately surrounding the school, and it is advisable that different sections of the work or different subsections of the school area should be allotted either to individuals or to small groups of pupils, with suitable checks. In no case is it either necessary or advisable for any pupil to attempt the whole of the topics under consideration.

3·3·3. The following details indicate the lines of approach used in a densely populated urban area with a rural fringe, situated in the neighbourhood of London. What follows should be regarded as purely suggestive. The actual character of each survey will be determined by local considerations only.

I. Preliminary Outdoor Work by Pupils

To make collections of local specimens, geological, botanical, etc.

To keep weather records.

To bring in local postcards, photographs, old pictures, prints, plans, or maps.

To collect cuttings from the local newspapers.

To make copies of old plans or maps found in a museum or library.

To find out the dates of houses or other buildings.

To make lists of some of the names of streets and public-houses.

To insert in a hektographed map the position of churches, picture palaces, public buildings, filling stations, etc.

To visit the markets and shopping places and to discover the sources of food-stuffs, coal, and other commodities.

To visit churches, town halls, museums (*e.g.*, Stratford), and public libraries.

To find out the factories and to discover the sources of raw materials.

To note the destinations of trains, trams, buses, tubes, or main roads.

To find out particulars of local monuments, statues, memorial tablets, etc.

To take photographs, or make rough sketches of details of local interest, *e.g.*, the windows and arches of the churches, the bridges, etc.

To visit the local parks and other open spaces (*e.g.*, Epping Forest), noting the vegetation.

To visit a neighbouring borough for comparison's sake. To note differences, *e.g.*, in the paving of streets, naming of streets, etc.

To stroll down a main thoroughfare and to pick out public works, to find out what authority is responsible for them, e.g. library, hospital, police station, reservoir, schools.

To discover digging operations and other excavations, quarries, well borings, etc., and to note strata disclosed. To make sketches of such exposures.

To visit the railway goods yard and find out what goods are handled.

To classify house types. The following scheme for the classification of house types in a residential district has been received from a correspondent whose pupils have made a local survey of a London Borough:

- (i) Houses in their own grounds, well set back from the road.
- (ii) Large detached houses with big gardens.
- (iii) Villas, semi-detached or of terrace type, roughly classified according to age.
- (iv) Cottages with small gardens.
- (v) "Slum" dwellings without gardens.
- (vi) Modern blocks of flats.
- (vii) L.C.C. Housing Estates.
- (viii) Large houses which have been subdivided.

To note building materials used.

Other exercises will suggest themselves according to the type of district. The information thus gathered will prove to be invaluable for teaching purposes.

II. Class Work—in most Cases taken after Outdoor Work

A. *The Ordnance Map of the District.*—Explanation of the conventional signs.

B. *The District as viewed from the "Outlook Tower"* —the top floor of the school or the summit of a local hill. The directions well driven home by the use of the map. Important buildings and landmarks to be noted.

C. *The Physical Features of the District.*—In urban areas a map of the district before houses were built can be made: also a relief model to scale.

D. *Simple Geology of the District.*—Comparison of the results of examination of local excavations with the Geological map. The study of local building materials.

E. *The Plant and Animal Life of the District.*—The mapping of types of vegetation in parks, commons, etc.

F. *The growth of the District*, as traced from old maps as far back as possible. The manors; the old houses marked on the modern map. References in Domesday Survey, if any. The influence of the building of bridges and the coming of railways. The swallowing up of villages (*e.g.*, Plaistow). Boundaries. Graphs to show growth and density of population.

G. *The Old Buildings.*—Talks on the same before or after visiting.

H. *The Means of Communication.*—The study of roads, railways, canals. Maps of the same constructed, and discussions on suggested improvements, *e.g.*, New Docks Road, etc.

I. *The Industries of the District—Decayed, Decaying, and Modern.*—To be mapped out, and reasons for their presence, growth or decay to be discussed. Supply of labour.

J. *Place-names of the District.*—Street names and public-house names. Talks on the same.

K. *The Open Spaces and Social Centres.*—The same mapped out. Scarcity noted in crowded areas. Special features discussed. In the case of open spaces, differentiation between those for:

    1. Recreation.
    2. Food production (*e.g.*, allotments).
    3. Future housing and industrial development.

L. *The Local Authorities.*—Functions discussed after reference to specially prepared maps, showing fire stations, libraries, baths, etc.

M. *The Feeding of the District.*—Mapping of local markets and food shopping centres. Milk supply—comparison of prices.

N. *Education in the District.*

O. *The Health of the District.*—Report of Medical Officer of Health. Sewage disposal. Water supply.

P. *Beauty Spots.*

Q. *Improvements, and Suggested Improvements in the District.*

3·3·4. A list of reference books should be drawn up by the Central Survey Committee, and it is generally possible to secure the co-operation of the chief librarian of the locality in making these available for the use of those who are engaged in the survey. In addition to the list of books on regional survey in Appendix V, a list of local references should be given. The following local list, drawn up by the South-West Essex Committee of the Geographical Association, is given as an example:

Cox, J. C.: Essex. Methuen. 5*s.*
Victoria County History of Essex. Constable.
Evolution of Essex Rivers and the Lower Thames. Gregory. 2*s.* 6*d.*
Kelly's Directory of Essex.
Hatley, A. R.: The Lea and Roding Valleys. Bacon. 1*s.* 6*d.*
Howarth, E. H., and Wilson, M.: West Ham—A Study in Social and Industrial Problems. Dent. 2*s.* 6*d.*
Memoir of the London District. Geological Survey (1922). 1*s.* 6*d.*
Percival: London's Forests. Dent.
Commission on Historical Documents, S.W. Essex. H.M.S.O.
Domesday Book (Essex).
The People's History of Essex (Illust., Maps, 1861).
Country Rambles in and around Ilford (Illust., Maps, 1910).
Essex Field Club Reports.
Ilford—Past and Present. 1901.
Ilford, Walford's "Greater London." Vol. I.
Barking Abbey in the Middle Ages.
Andrews, W.: Bygone Essex, 1892.
Essex in Days of Old, 1898.
Royal Illustrated History of Eastern England. 2 vols. Boyne.

Beauties of England and Wales. Vol. V. Essex. 1916.
Brahl and Moncrieff: Essex. 1909.
Census of England and Wales. 1931.
The Trade Signs of Essex. 1887.
Silvertown and Neighbourhood (including East and West Ham). 1900.
Weston: History of Essex.

Maps:

Ordnance Survey. Part I. General Survey of England and Wales, 1 inch to 1 mile, by Colonel Mudge (about 1800).
Ordnance Survey. Sheet 107. Popular Edition, 1 inch to 1 mile.
Ordnance Survey. G, H, L, Sheets of the London Series, 6 inches to 1 mile.
Geological Survey, London. Sheet 2 (Drift Edition), 1 inch to 1 mile.
Walthamstow-Leyton District, 6 inches to 1 mile, special map with contours at 5 feet intervals (Sifton, Praed and Co.).
Ilford Plan, 4 inches to 1 mile.
Map of Ecclesiastical Parishes.
Map of Wards of West Ham, 6 inches to 1 mile (3 sheets).

To these should be added the appropriate sheets of the two-and-a-half inch scale maps of the Ordnance Survey. Old maps of county or district are usually available for inspection on application to the County Record Office or County Archivist (at Chelmsford, in the case of Essex).

3·3·5. Excellent accounts of the scope and methods of local survey in rural areas can be found in various publications[1] while those who have had little or no experience of survey methods might find the scheme of the Land

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[1] Such as H. C. Barnard's *Observational Geography and Regional Survey* published by the Le Play Society. This contains a short Bibliography.

Utilisation Survey more suitable for their first attempt to develop the practical study of a rural neighbourhood.

3·3·6. The following sequence may be commended to those teachers who desire to make the practical study of local geography a permanent feature of the curriculum:

(1) A Preliminary Survey of relief, geology and soil, hydrography, climate and weather, vegetation, fauna, and land utilisation.

(2) A Historical Survey ranging from prehistoric and Roman remains, ancient buildings and place-names to town growth.

(3) A Social and Occupational Survey.

3·3·7. As far as possible the results should be summarised on maps, which, with explanatory notes, should be indexed and stored in folders. In some places the records of regional survey are housed in the local museum or free library, but, if this is impossible, space should be found in the school library.

3·3·8. Urban districts offer special difficulties, but these are often more than balanced by the greater wealth of material for study. More attention will, naturally, be paid to economic, historical, and social development than in rural districts, but it is important that in every case the study should begin with the physical bases—relief and drainage, soil and climate. Special attention should be paid to problems connected with the distribution of population, the transport of passengers and goods, and trade relationships with outside areas.

3·3·9. The units of area chosen by teachers for their courses in Local Geography vary greatly. In cases, for example, where it is impossible to secure the co-operation of a number of schools in the survey of a minor region, the work will assume a much more specialised character. Some teachers prefer an area of from twenty to thirty square miles, so that every part of it is accessible on foot or by a short bus or tram ride. The advantages of choosing a small unit are that the whole of it can be covered by personal observation and that, distances being short, much of the work can be done during an ordinary class period with less resultant interference with the time-table. In town schools much smaller areas than this are often chosen. One correspondent chooses an area surrounding the school measuring five miles by seven, which, on a scale of one inch to the mile, can conveniently be mapped on a page of an ordinary school note-book. The choice of the scale must, however, be mainly governed by the kind of work done. Teachers in rural or semi-rural schools commonly choose the area covered by a parish or that administered by an Urban District Council, while a few prefer a much larger area, in one case a whole county. In the last instance pupils attending the school, a rural one, come from considerable distances, and so from many different types of country. Such an area is too large to form a suitable unit for study at the Preliminary Stage, and, in any case, much organisation and the use of team-work are essential. In single school surveys the amount of preliminary work which must be done by the individual teacher is considerable, but the results obtained will, as a rule, more than justify the effort involved.

Examples of Local Geographical Studies

(*Published by the courtesy of Miss D. Wilford, Stockwell Training College*)

3·4·1. *St. Ives*

The study from which the maps on the next page have been culled has been based on a comprehensive survey of the parish of St. Ives, carried out in 1931 and 1932. The Local Geography of the neighbourhood is presented in the following sequence :

1. General Geography of the Local Region and Definition of the Area for Detailed Study.

2. Relief and Drainage : the influence of geological conditions upon coastal structure and relief; the use which

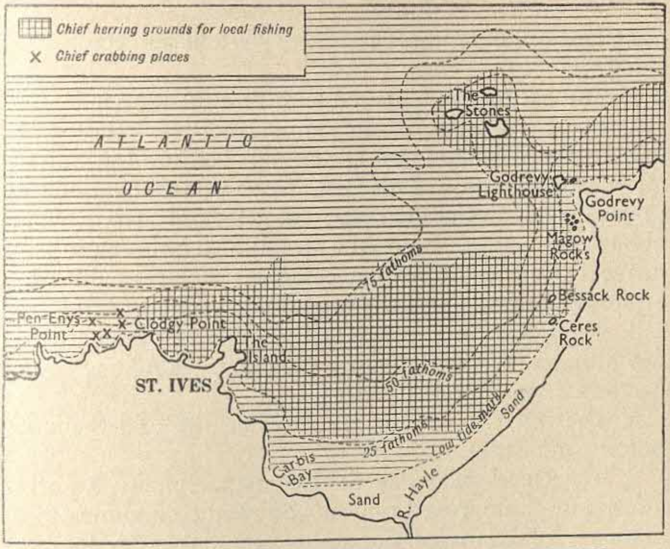

FIG. 49 – ST. IVES : DEPTH OF WATER AND HERRING GROUNDS

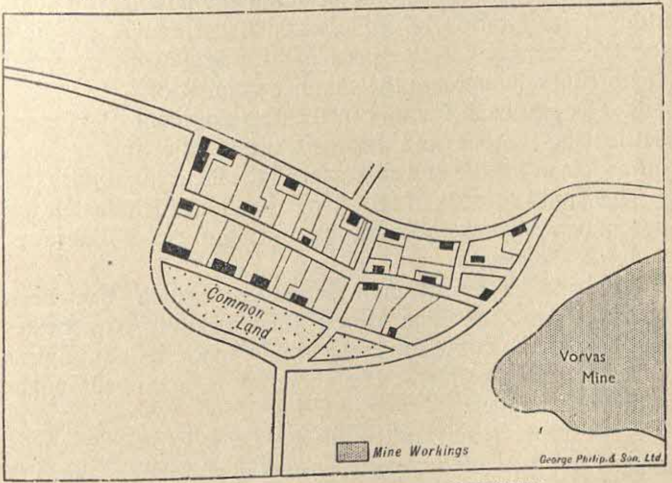

FIG. 50 – VILLAGE OF HALSETOWN, CORNWALL

Showing agriculture subordinate to mining. Note each house has about two fields for cows or pigs. When the mine was working the people were part-time farmers and miners.

man has made of the various rocks and mineral lodes, chiefly tin.

3. Local Climate compared with that of London.

4. Local Agriculture: its importance in relation to mining and fishing (Figs. 49 and 50): land-utilisation; the internal organisation of the farm; the response of agriculture to local and distant markets; the effect of strong winds upon tree growth and the traditional occupation of "wrecking"; breed of cattle; perennial pasture; cultivation of spring flowers and early vegetables; value of land.

5. The Local Fishing Industry: the summer pilchard and the autumn herring seasons; crabbing, "long-line," and deep-water mackerel fisheries.

6. The Art Colony and the Crysede silk and Stennach pottery industries.

7. The Development of St. Ives as a Holiday Resort—a response to improved railway and road communications: influence of increased popularity upon the development of the old town ("Down-along") and the new town ("Up-along"); emigration of miners and fishermen responsible for the decrease of the permanent population; seasonal visitors largely increase the summer population.

8. Geographical Factors in the Development of Human Settlements: Stone and Bronze Age, Celtic and modern influences in the life and character of the local inhabitants.

This study consists of fifty-five pages, and includes eleven new maps, sixty-six photographs, and a number of diagrams.

3·4·2. *Colchester*

As befits a pre-Roman settlement which has been occupied since Roman times, this study of Colchester emphasises the conditions which have made its continuous development possible. The material is arranged in the following manner:

1. Position, relief, and drainage: flora, fauna, and geological deposits of the Tertiary and post-Tertiary periods; characteristic flora of London clay, glacial gravel and sand, boulder clay, and alluvium, and the influence of

these soils on land utilisation at the present time; prehistoric peoples.

2. Early Development: an easily defended spur south of the Colne fortified by the Trinobantes and occupied by the Romans, who introduced the cement industry; the Domesday Survey (see Fig. 51) and the development of monastic life, markets, and fairs; agriculture and fisheries; wool export trade and the rise of woollen and leather industries; medieval buildings chiefly on well-drained sands and gravels; modern water-supply from glacial deposits.

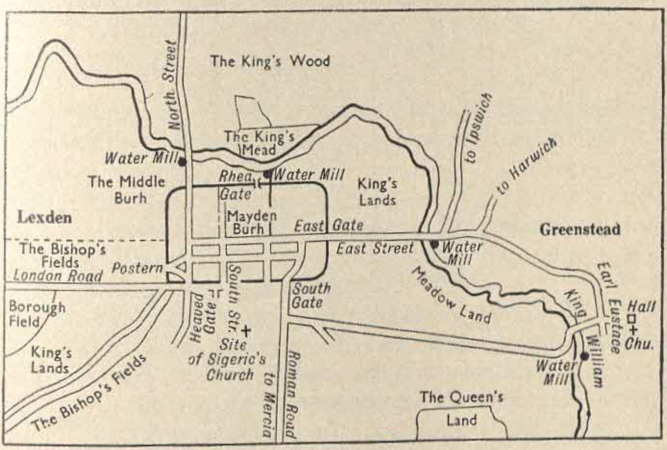

FIG. 51 – COLCHESTER, 1086

3. Effects of the Industrial Revolution: new means of transport extended the area built upon to those parts served by the railways, tramways, and motor coaches; corn and oil milling; brewing; brick-making; market-gardening and rose culture; oyster fishing at Pyefleet; ironfounding, engineering, and clothing industries; the port of Colchester and its river and oversea trade.

4. Summary of the Geographical Aspects of Colchester's Development.

This study comprises one hundred pages of text and contains in addition an index, a bibliography, and five maps based upon the six-inch map of the Ordnance Survey of the district.

3·4·3. *Wangford, East Suffolk*

This geographical survey is an excellent example of what may be done in a rural Secondary School. An examination of the general geography of the area is followed by a detailed survey of the distribution of the population and its occupations, and a clear description of the utilisation of the land is followed by an intensive study of a farm. The method of conducting such a survey is well shown. The text is the result of the comparison of the six-inch maps showing relief and drainage, geological structure, distribution of population, and land utilisation. The relation of the foregoing and of climate to human activities, past

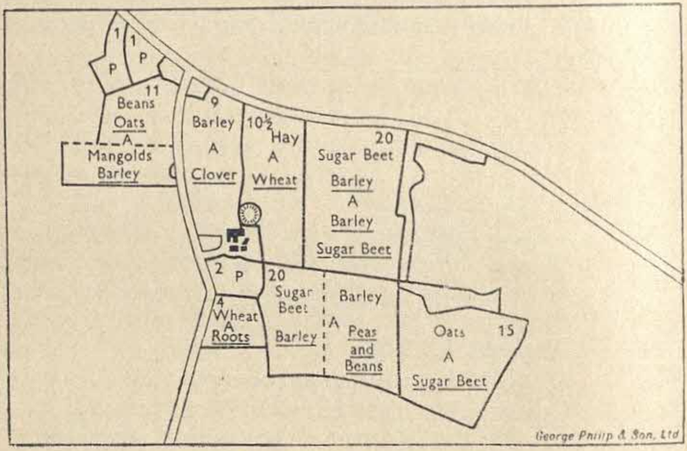

FIG. 52 – WANGFORD, EAST SUFFOLK

Figures denote acreage ; A. Arable ; P. Pasture. 1932 crops thus : Barley. 1933 crops underlined, thus : Clover. Subsoil boulder clay except in south-east field which is pebbly sand and gravel.

and present, is carefully worked out, special points being illustrated by sketch maps, diagrams, and photographs.

The Merseyside Handbook

3·4·4. The possibilities offered by a highly developed and complex area are shown in this summary of a projected Merseyside Handbook for Teachers. It is evident that the work covers a very wide range and constitutes a notable geographical and educational venture. Though not many school neighbourhoods could rival the attractions of this area, there are few regions where something of the kind could not profitably be attempted.

Suggested summary of chapters

1. *Introductory*—A broad consideration of the social and economic character of Merseyside and of certain of its basic problems.
2. *The Physique of Merseyside.*

   (*a*) Descriptions of (*i*) a local brickworks or tile works (*ii*) a local quarry, to illustrate the contrasting properties of clay and sandstone.

   (*b*) The interest to the physical geographer of:
   - (*i*) Road cuttings at Thurstaston and Grange Hill, West Kirby. Current bedding.
   - (*ii*) The Blundellsands shore. Submerged forest, encroachment of sand-dunes, migration of River Alt.
   - (*iii*) The Burton-Parkgate shore. Formation of new land and the spread of samphire.
   - (*iv*) The Thurstaston-Caldy shore. Glacial deposits.
   - (*v*) The Magazines-Eastham shore. Wave-cut shelf.
   - (*vi*) The Spital Dam area. Fault in road cutting; river gorge and meanders in Brotherton Park.
   - (*vii*) Harrock Wood, Irby. A small stream with interlocking spurs.

   (*c*) Materials used in local buildings, chronologically arranged—stone, unglazed brick, Ruabon brick, pebble dash, etc. (This section might, however, be better deferred for inclusion in an outline chronology of cultural landscape.)

3. *The Dee Estuary.*

Its physical character briefly noted and its future possibilities discussed. (The Dee is a well known objective for Merseyside ramblers and contrasts sharply with the Mersey).

4. *The Mersey Estuary.*

(*a*) Physical contrasts between the outer estuary, the inner estuary and the connecting channel, as viewed from various "strategic" points.

(*b*) The Mersey as a "wild beast of a river." Great tidal range, swift scour, sandbanks, anchorages.

(*c*) The relation of the above to landing places and methods, docks, dredging, training walls, river works, revetment, embankments and the possibility of bridging.

5. *A sample Ancient Village and its Parish.*

(*a*) The site of (say) Sefton or Bebington in relation to sandstone or clay, water supply, heath, roads, possibilities of flooding, etc. Contrast between village site and location of heath cottagers and road cottagers.

(*b*) Information yielded by the Tithe Map, *e.g.*, about field names and former systems of land holding or cultivation.

(*c*) Present utilisation of parish.

(*d*) "Lost" villages like Everton, Bootle, Liscard and Tranmere to be noted and their exact sites given.

(*e*) Local village names and their presumed derivations.

(*f*) A list of ancient buildings in the Merseyside locality with a tabulation of their features of interest.

6. *Central Liverpool.*

A description of the site of medieval Liverpool.

(*a*) In 1400.

(*b*) In 1720 after the construction of the first dock.

(*c*) At the present time. This description should note the site and significance of important buildings (public buildings, markets, insurance offices, banks, shipping offices, etc.), and the work done in them.

7. *The Woodside "Peninsula" of Birkenhead.*

A description of its site.

(*a*) In 1400, noting the site and functions of the Priory.

(*b*) In 1840, after the building of Hamilton Square.

(*c*) At the present time, noting the routes focussed on it and the competition for the use of its limited space.

8. *The Internal Contacts of Merseyside.*

The journey between outer Liverpool and outer Birkenhead considered historically. Roads and their surfaces, public vehicles, ferry steamers and landing places, rail and road tunnels.

9. *The Docks.*

(*a*) A dock in Bootle—its entrances, quays, sheds, warehouses, etc., and the roads and railways which feed it. The dockmaster's problems.

(*b*) The problems of the stevedore. How each type of cargo must be loaded and unloaded in a different way.

(*c*) Types of dock worker: quick "turn round" and the problems involved.

(*d*) A concise chronology of the dock estate.

10. *Shipping.*

(*a*) Main types of ship—passenger liner, old tramp, new tramp, bulk cargo vessel, coaster.

(*b*) The charter party.

(*c*) Types of seamen and their functions. Foreign and coloured seamen.

(*d*) The pilot service—charts, channel, buoys, etc.

(*e*) Liverpool's hinterland and advantages over Manchester, Preston and Chester.

(*f*) A concise chronology of the chief Liverpool shipping firms.

11. *Manufacturing Industries.*

(*a*) A classified list of the main manufacturing industries (*i*) catering for the needs of the port, (*ii*) dealing with imported raw material, (*iii*) serving the needs of a large population, (*iv*) those not included above.

(*b*) Descriptive accounts of shipbuilding (in detail); flour milling; sugar refining; cattle cake manufacture; soap making, etc. Mention to be made, if possible, of the whole setting of the industry, technical, social, external contacts, industrial locations, etc.

(*c*) A brief statistical comparison of the numbers employed respectively in (*i*) commerce and (*ii*) manufacturing industry. Contrast in this respect with certain other towns in Britain.

12. *Farming.*

Description of (*a*) an arable farm near Kirby or Knowlsey, (*b*) a mixed farm (*e.g.*, Mr. Duncan's) in Wirral, (*c*) a market garden near Wallasey or Formby, (*d*) a flower grower's near Hale.

The studies should note the farmer's year and give an opportunity for discussing soil conditions, climate and marketing problems.

13. *Speke—A place of varied interest.*
    (*a*) The Hall.
    (*b*) The new industrial site (planned industry).
    (*c*) The Airport, its site, regional position, and cultural landscape.

14. *Three well known places to visit.*

(*A*) *New Brighton.* The journey from Liverpool Landing Stage. Contrasts between opposite sides of the river. Features of geographical interest, e.g. pier, lighthouse, the clay cliffs towards Egremont, Portland Court, etc. Changes in the last half century—the Tower, the Ham and Egg Parade, the Red Noses.

(*B*) *Bidston Hill.*

(*a*) The journey from Woodside.

(*b*) The physique of the hill—hard cap, soft base, scarp and dip slopes.

(*c*) The hill as a viewpoint. How it came to be preserved.

(*d*) Its utilisation—heath squatters, signalling station, mill, lighthouse, weather station.

(*e*) Bidston village and Bidston Hall

(*f*) School Lane as a residential appendix to the old village.

(*C*) *Grange Hill.*

(*a*) The journey from Bidston along the North Wirral flats.

(*b*) The general character of West Kirby.

(*c*) The view from the top of Grange Hill (monument) noting:

- (*i*) contrasting utilisations of sand dune belt and flats.
- (*ii*) the scarplands of North Central Wirral.

(*d*) The walk along the ridge towards Thurstaston,

- (*i*) noting features across the Dee,
- (*ii*) comparing the utilisation of the ridge with that of Bidston Hill.

Appendices.

1. A Bibliography, preferably annotated.
2. Statistics of climate, occupational groups, trade, population, etc.
3. Suggestions on Teaching Method, *e.g.*, various questionnaires.
4. The Cultural Landscape—its main features chronologically arranged.

IV. Field Work outside the Local Area

4·1. These activities develop naturally from those outlined in Section III since their main objective is the same: the direct study of Geographical phenomena in the field. The range of work and the circumstances of Schools are so varied that it is not possible to do more than indicate, with examples, the methods which have proved most useful in the past.

School Journeys

4·2·1. If limited in time to one day School Journeys are no more than an extension of the visits paid to local centres of interest, and their scope will obviously be dictated mainly by the school's geographical position. The following example of a school journey made by Carlton High School, Bradford, shows the possibilities of a well-organized expedition.

4·2·2. The success of the day will largely depend on the thoroughness of the preparations made beforehand. The outing must be carefully planned to come within the limits of the pupils' strength and equipment. The day at Malham provided a geographical feast, but only a relatively small and physically strong party could sustain the necessary effort happily. It is always better to plan for too little rather than too much, and to leave everyone feeling that much yet remains to be done, rather than tired and satiated with an attempt to compass everything at once. It is necessary always to leave a margin of time to allow for the unforeseen. The more thorough the explanation of the project, and the more comprehensive the pupils' preparation, the less will be the time wasted and the less the fatigue induced by halts and explanations.

4·2·3. A thorough drilling in the minutiae of walking will be well repaid. The feet are all important. Socks, shoes, stockings, boots should be big enough, an object more difficult to secure with growing children than with adults. If the feet are washed over a few times with a solution of alum or methylated spirit, the insides of socks and stockings well soaped, and toe nails cut the night before the journey, blisters and foot soreness will be reduced, probably to vanishing point. Clothing in these days is a difficult problem. It should be warm and light, loose fitting and, if possible, of wool. Special care should be taken to eliminate unnecessary weight such as books or anything packed in cases.

Carlton High School, Bradford.

4·2·4. *School Journey for Practical Geography, July* 1913.
Pupils' Form.

Programme.

I. *Time of arrival at Bell Busk.*
II. *Observation of the place.*
III. *Reasons for settlement and station there.*
IV. *View from hill near station* (N.B. Craven Fault).
V. *Walk along river bank.*
Observations regarding the river:
  (*a*) Water.
  (*b*) Current.
  (*c*) Bed.
  (*d*) Banks.
  (*e*) Rocks or boulders.
  (*f*) Erosion.
  (*g*) Uses made of it.
  (*h*) Plants and flowers growing alongside.
  (*i*) General character of the valley.
VI. *Village of Airton.*
Observations:
  (*a*) Situation.
  (*b*) Reasons for settlement.
  (*c*) Character of houses and gardens.
  (*d*) Character of industry.
  (*e*) Observations regarding the inhabitants.
  (*f*) General remarks.
VII. *Village of Kirby Malham.*
Treat as preceding and trace history connected with the place.
VIII. *Approach to Malham.*
Note the gradual change in character of:
  (*a*) Scenery.

(*b*) Soil.
(*c*) Flora.
(*d*) Occupations of the people.

Note the spring called Aire Head and trace out on map its underground course.

Observe the confluence of *Gordale* and *Malham* becks.

IX. *Gordale.*

Observe:

(*a*) Character of rocks and cliffs.
(*b*) Character of boulders in valley.
(*c*) Probable sea erosion at base of cliffs.

Note absence of glacial scratches.

Note that the gorge is gradually wearing its way backwards.

X. *Climb up the Gorge.*

(*a*) Observe a good example of a small secondary fault.
(*b*) Observe the peculiar colour of the water and account for the same.
(*c*) TAKE CARE.

XI. *Malham Moors.*

(*a*) Of what are the walls built?
(*b*) Note the character of the vegetation and fauna.
(*c*) Locate surrounding hills on map.
(*d*) Note the altitude and temperature.

XII. *Malham Tarn.*

(*a*) Observe the basin of drainage.
(*b*) Observe the clearness of the water.
(*c*) Observe the pebbles and bed of slate.
(*d*) Literary association: Kingsley's *Water Babies.*
(*e*) Follow stream which issues to the Water Sinks.

XIII. *Malham Cove.*

(*a*) Observe action of water on limestone at top of precipice.
(*b*) Note and make rough sketch of view from summit.
    (*i*) Aire Gap.
    (*ii*) Midland Railway.
    (*iii*) Lower Ribblesdale.

        (*iv*) Pendle Hill and part of Lancs. Plain.
        (*v*) Study the situation of Malham Village.
    (*c*) From foot of cove.
        (*i*) Note echo.
        (*ii*) The great limestone cliff in three layers.
        (*iii*) The stream issuing sluggishly from the above.
        (*iv*) Theories relating to the same.
        (*v*) If time permits, take angle with sextant.

XIV. *Malham Village.*
    (*a*) Earlier spelling and local pronunciation Mawm, *i.e.*, the village or hamlet of the pass or gorge.
    (*b*) Note the quaint name of Finkle Street (Dan. vinckl=angle or corner). Observe if the name is applicable.
    (*c*) If time permits, note the present and ancient industries of the place.

XV. 4½ *miles walk back to Bell Busk Station.*

4·2·5. If regulations permit of a School Journey extending over a period of days, the possibilities are almost unlimited. The details here given of two journeys made by the Cambell Boys Senior School, Dagenham, speak for themselves. Long and careful preparation is obviously required. For these journeys the boys met in school for two periods a week from October to May and discussed the district to be visited. They read as much as possible about it, saw pictures and films, and studied maps, histories and geographies. From the data so obtained the detailed plan was built up and embodied in a booklet, of which every boy had a copy, containing the programme, list of equipment and rules to be observed, diagrams of the railway journey to the area and of the area itself, a geological and geographical summary, a brief history of the district, and a series of articles, illustrated by their own drawings, of the places they were going to see. The booklet, produced and bound in the School's own craft-room, was in itself a comprehensive and valuable study of the district.

4·2·6. The grown-up side of the preparations included arrangements for travelling, accommodation, usually at Youth Hostels, visits to places of special interest such as docks or factories, and all the necessary permissive and financial details relating to parents, school and educational authorities. Such a venture is not lightly to be undertaken, but its rewards are beyond price.

Cambell Boys' Senior School

4·2·7. *Educational Tour in Hampshire*, 16*th to* 20*th May*, 1938.

Programme.

Monday, 16*th May*: Becontree to Winchester via Waterloo—dinner at hostel—visits to Cathedral, Castle, St. Mary's College, Westgate, Kingsgate, Jane Austen's House, Museum, etc.

Sleeping at Youth Hostel, Water Lane, Winchester.

Tuesday, 17*th May*: Coach tour through New Forest, stopping at places of main interest, including Romsey, Rufus Stone, Lyndhurst, Beaulieu Abbey, Buckler's Hard, etc.

Sleeping at Youth Hostel, Water Lane, Winchester.

Wednesday, 18*th May*: Train to Southampton—visits to old and new docks, inspection of a liner, etc. Evening train to Portsmouth.

Sleeping at Fort Purbrook, Portsmouth.

Thursday, 19*th May*: Crossing from Portsmouth to Ryde, I.O.W. Train to Carisbrooke—visit Castle and Castle Museum.

Sleeping at Fort Purbrook, Portsmouth.

Friday, 20*th May*: Visits to Dockyard—inspection of "Victory," a modern battleship, Harbour Museum, etc.

Depart Portsmouth 3.23 p.m. to Becontree via Waterloo.

4·2·8. *Educational Tour in the Peak District*, 15*th to* 20*th May*, 1939.

Programme.

Monday, 15*th May*: Becontree to Derby via St. Pancras Visits to works of Royal Crown Derby Porcelain Co., Ltd., and to L.M.S. Carriage Works.

Derby to Ashbourne. Sleep at Ilam Hall, Dovedale, Ashbourne.

Tuesday, 16*th May:* Walk in Dovedale. Coach trip, Alsop-en-la-Dale to Derwent, via Bakewell, Eyam, etc.

Sleep at Derwent Hall, Ashopton.

Wednesday, 17*th May*: Train from Bamford to Sheffield. Visit to Works of Messrs. Steel, Peech and Tozer, Rotherham, etc.

Sleep at Derwent Hall.

Thursday, 18*th May*. Coach trip around the Peak, through Snake Pass, Glossop, Chapel-en-le-Frith, Buxton, Castleton, etc.

Sleep at Derwent Hall.

Friday, 19*th May*: Train to Chesterfield and Staveley. Visits to Church of "Crooked Spire" and to works (blast furnace) of Staveley Coal and Iron Co., Ltd. Train to Stretton.

Sleep at Overton Hall, Ashover.

Saturday, 20*th May:* Train to Nottingham. Visit to Castle and to works of Messrs. G. W. Price, Lace Manufacturers. Train to Becontree via St. Pancras.

Arrive Becontree about 5.30 p.m.

4·2·9. Their *Equipment* was simple and sufficient:—

Case or Haversack.
Tooth brush.
Nailbrush.
Brush and Comb.
Soap, flannel.
Towel.
Boot Brushes.
Night attire.
Spare pair of stockings or socks.
Spare collar.
Raincoat or overcoat.
Handkerchiefs.

The following if obtainable: Water bottle. Camera.

Rules on the Tour

No boy will wander away from the teachers without permission at any time during the tour.

You are expected to look after your own kit—do not expect the teachers to do it for you.

Do not lean out of railway carriage windows or get out before the train stops.

Every boy will appear at meals with face and hands well washed, hair brushed and clean boots.

Do not leave the hostel without permission.

Stay in bed until you are called in the morning.

There will be a definite period each day for the write-up of the day's work—Do it well.

Fire drill will be explained and practised each evening at sleeping quarters.

Accommodation

I. *The Council for the Promotion of Field Studies.*

4·3 It is wise to base these expeditions on well proved accommodation. The Council for Promotion of Field Studies has at present four Field Centres:—Flatford Mill, East Bergholt, Nr. Colchester, Essex (Warden:—P. H. T. Hartley, M.A.); Juniper Hall, Mickleham, Surrey (Warden: —G. E. Hutchings); Malham Tarn House, Near Settle, Yorks. (Warden:—P. F. Holmes, M.A.); and Dale Fort, Haverfordwest, Pembrokeshire (Warden:—J. H. Barrett, B.A.), with sub-centre on Skokholm Island (Warden:—P. Conder). They can receive parties of school children with their teachers, and, although hitherto those taking part in such visits have been mainly sixth formers, wardens are able, to a limited extent, to accommodate younger children from both Grammar and Modern Schools and from Technical Schools. The standard charge of six guineas per week includes board and lodging, use of laboratory accommodation, library, etc., and services of warden in arranging (in most cases organising) field work, and giving training in carrying it out. In some cases L.E.A.'s have paid the expenses of children taking part in these activities, and the Council will do its best to persuade Authorities to do this. Accommodation is limited (50 each at Flatford, Malham and Juniper Hall, and rather fewer at Dale). They are usually full up in the summer, but have so far had few applications for Autumn visits, though conditions are quite good then.

II. *The Youth Hostels Association.*

4·4·1. The Youth Hostels Association provides simple standardized accommodation at a low cost. Full details can be obtained from their National Office, St. Alban's, Herts. The Youth Hostels now cover most of the recognized tourist areas, and are being increasingly used for School Visits by parties of children between the ages of 9 and 16 who need not become members of the Association. As a rule parties are welcomed at any time except Bank Holiday weekends, and Saturdays in the holiday season.

4·4·2. *Hostel Routine.*

The routine of hostel life is very simple, and the few rules which must be observed are the minimum necessary for the smooth running of the hostel.

Parties must be accompanied by one adult of the same sex for every ten children; if the party is made up of both sexes, an adult of each sex must be included. These leaders must be members of the Association. The conduct of a party whilst in the hostel is the responsibility of the leaders, and the success of a party visit is dependent upon the friendly co-operation of leaders and Warden.

The low charges at hostels are only made possible by the help of hostellers in performing domestic work. Every person using a hostel is required to carry out not more than half-an hour's hostel duties, such as washing-up, sweeping out dormitories, cleaning the grates or shaking the blankets in the open air and folding them.

All hostel users must carry or hire a regulation type sheet sleeping bag, but all other bedding is provided. Hostellers also provide their own toilet requisites.

The hostels are normally closed from 10 a.m. to 5 p.m., though in special circumstances the warden may exercise his discretion. The hostel is closed at 10 p.m. and "lights out" is at 10.30 p.m. No cooking is allowed in the members' kitchen after 9 p.m.

4·4·3. *Charges*

The overnight charge for juvenile parties is 9d. per person, except for those over 16 for whom the charge is 1s. 6d. Meal charges vary from 1s. 6d. to 2s. 0d. and are given in the handbook. The hire charge for sleeping bags is usually 9d., though one or two Regions reduce the charge for juveniles. A few Regions have bags available on period hire, and you can ask about this when you write to the secretary.

4·4·4. *Organising a School or Club Visit*

Full particulars of all hostels are given in the Y.H.A. Handbook, price 7d. post free, and the positions are marked on the Y.H.A. Map, price 9d. post free. The handbook also gives the names and addresses of the Regional Groups controlling the hostels. A list of Regional Booklets will be found on the back of this booklet. If help is required in the choice of hostels, write to the Regional Secretary. When the choice has been made, the following particulars should be sent to the Secretary of the Region concerned.

1. Name and address and current membership number of leader and other adult members of the party.
2. Nature of party, *i.e.,* school, club, scout troop, etc.
3. Size of party: state the number of each sex.
4. Name of hostels it is desired to visit, date of visit and desired length of stay.
5. Whether it is desired that wardens should provide meals.

A stamped addressed envelope should be enclosed.

The secretary in reply will give instructions as to the payment of overnight fees, and will make the necessary arrangements with the hostels.

4·4·5. *Insurance*

Group Leaders acting *bona fide* in the name of the Association and with the consent in writing of the National Office as a Regional Secretary, are covered against Third Party risks under a policy taken out by the National Office. This policy covers the legal liability at Common Law for Personal Injury (including food poisoning, fire and explosion risks) and Property Damage, anywhere in England, Scotland and Wales.

Camping

4·5. Some Schools may be able to avoid the formality and expense of accommodation at a permanent centre by setting up a camp of their own. A most successful example is that of Cockburn High School, Leeds, the details of which may well serve as a model for all such ventures. The account here given clearly dates from before the 1939-45 war, and allowance must be made for this.

Cockburn High School Geography Camp

Time, Scope and Staff

The camp is held for a fortnight in July, one of the two weeks coinciding with part of the School Certificate Examination. This enables the Geography master, who is in charge of the camp, to be released, and allows of at least one other master accompanying him.

Admission to the camp is confined to boys of the Third and Fourth Forms, divided into two sets, each of which spends eight days at camp, one set returning on the day the second set starts. The number of boys is about 100 altogether, 50 or so in each set.

Attendance at the camp is voluntary, but actually all boys in the forms mentioned attend, except for any who may have physical defects, and these are excluded in any case. Thus, out of three Third Form sets, at least two attend camp, leaving a residue which can be looked after by one master. Hence two masters are set free, one of whom is, of course, the Geography master, and their work outside the "Camp" Forms is done by masters released from work in those forms.

The camp is self-supporting, and much work and heavy responsibility are entailed on the part of the Geography master.

Cost

The charge to the boys is £1 per head, though it may be reduced in the future. This includes all fares, carting of luggage, hire of field, provision of food, loan of groundsheets and palliasses, purchase of tents, cookery costs and indeed, everything, including even Doctor's fees in case of illness, which is, as a matter of fact, very rare.

Each boy brings a statement signed by his parent, absolving the master in charge from responsibility, assuming that due care has been taken.

Examples of Work Done

The following subjects are studied by actual observation: (*a*) River Action, (*b*) Weathering, (*c*) Fossils and the Geology of the Pennines, in simplified form, (*d*) the Topographical Results of the Ice Age, (*e*) Faulting, etc., (*f*) the Development of Pot Holes and Dry Valleys, (*g*) the Depression of the boiling-point of water and the lessening of Pressure and Temperature on ascending a hill, (*h*) Vegetational changes in passing from one rock type to another, (*i*) Settlement in an upland area as contrasted with that of the city neighbourhood, (*j*) the Pastoral industry of the moorlands, with agriculture in the valley bottoms, (*k*) Communications (rail, road, etc.) in relation to the Aire gap.

The notes and maps required are hektographed beforehand, and each boy is provided with a notebook.

Results

The educational value of the camp is very great indeed. Some results that have been observed in the boys are:

(*a*) An immense gain in alertness and general health.

(*b*) A practical acquaintance with geographical concepts which distinguishes, in a marked degree, the campers from the rest of the pupils and helps materially in all subsequent study.

(*c*) A broadening of the mental horizon and the acquirement of a great store of general knowledge.

(*d*) A lasting impression on the mind. Old Boys returning to the school after eight or ten years recall long-forgotten details of their camp experiences.

Camp Routine

8 a.m. Breakfast.
9.15-12 noon. Work.
12-12.45 p.m. Free time, during which boys write letters, do voluntary work, and so on, whilst the staff have an opportunity of seeing to the lunch arrangements.
12.45 p.m. Lunch.
1.45-4.30 p.m. Work.
4.30-5.0 p.m. Free time.
5.15 p.m. Dinner (soup, meat and vegetables, pudding).
6.45-9.0 p.m. Free time, or maps and surveys to be prepared, or short excursions to be fitted in.
9.0 p.m. Supper.
9.45 p.m. Prayers and bed.

COPY OF STANDING ORDERS

1. Boys attending Camp do so on the understanding that they have read and understood the Camp rules and that they are willing to abide by them.

2. Boys must understand that while at Camp they will be under discipline.

3. No boy will be allowed to absent himself from Camp without permission from the master in charge.

4. No damage is to be done to the tents, equipment, or other Camp property.

5. *All gates must be left closed at all times.* No damage must be done to hedges or walls.

6. Boys are not allowed to use paraffin except in the presence and under the direction of a master.

7. Raiding will not be allowed under any pretext whatsoever.

8. Any boy feeling at all unwell during Camp shall report at the earliest opportunity to the master in charge. For any serious illness the services of a medical practitioner and a bed in the village are always available, but the Camp fund cannot be responsible for the additional expense incurred.

9. Any failure to attend to health duties should be reported at once to the master in charge. Simple medicines are kept in the Camp in additon to a complete "First Aid" outfit. Campers should look upon this point as a matter for their honour.

10. Orders will be issued daily and must be carried out by all named therein. All attending Camp will take their share of duties and general fatigues.

11. Every Camper will fatigue for himself, including washing-up, which must be done immediately after each meal.

12. Any boy who misbehaves himself may, at the discretion of the master in charge, be sent home at any time.

13. Every boy will be trusted on his honour to do his best to carry out orders on all occasions.

14. Boys will be personally responsible for their own kit.

15. The tent captain must see that the ropes of his tent are slackened in wet weather and at night, unless it be windy, when they may be tightened.

16. The tents and Camp ground must be kept clear of all litter. A dump is provided for the disposal of all unwanted refuse.

17. The whistle will sound for "reveille" and "lights out" and all meals. No meals will be kept for Campers who are not in at the proper times unless they have permission to be out.

18. *Between "lights out" and "reveille" there must be absolute silence.*

19. Boys are expected to write a short daily account of the Camp. This can always be done during the rest hour after dinner. Those who have cameras should not fail to bring them to Camp.

20. All kit and spare clothing must be carefully marked with the name of the boy. A place for everything and everything in its place.

21. No bathing will be allowed except in the presence of a master.

22. Final orders will be issued shortly before the Camp commences.

A Form of Notice of Camp.

A Camp will be held at……………………………………
from ……………………………… to ……………………………
under the direction of……………………………………
……………………………………………………………
The inclusive cost will be £………………… No applications to attend Camp can be received after……………………

The objects of the Camp are:

1. To study the geological and topographical formations in the region selected by actual visits to various places.

2. To investigate the action of the various natural forces at work producing the present land forms.

3. To observe the human response to the environmental factors, *i.e.*, to study the human geography of an upland area as contrasted with the industrial activities of the lowlands.

4. To practise elementary survey work.

The following is a suggested list of requirements in addition to the suit of clothing the boy will be wearing. Parents may add to it anything they think the boy will require. It is suggested that the articles be packed in a kit-bag or suitcase.

(*a*) Knife, fork, spoon, egg-cup. (*b*) Cup and two plates. (*c*) One large or two small blankets. (*d*) Great coat. (*e*) Sleeping suit. (*f*) Old jacket or sweater. (*g*) Two pairs of stockings. (*h*) One flannel shirt. (*i*) One pair of boots or shoes. (*j*) One under-vest. (*k*) One pair of canvas shoes. (*l*) Comb and mirror. (*m*) Toothbrush and paste. (*n*) Boot brushes and polish. (*o*) Towel and soap. (*p*) Four or five handkerchiefs. (*q*) One pair of laces. (*r*) Pencil, set squares, ruler and rubber. (*s*) Repair outfit, *i.e.*, needles, cotton, pins. (*t*) Small hammer. (*u*) A tin of dubbin is handy in case the weather proves wet. (*v*) A haversack and waterbottle are an advantage for excursions. Lunch will be required for the journey.

The postal address of the Camp will be:

Master ....
Cockburn High School Camp..................
....
....

....

Detach here. *Detach here.* *Detach here.*

Form to be signed by parent or guardian and returned to the Master in charge as soon as possible.

Name of Boy..age..............

Name and address of Parent or Guardian......................

....

Does the boy enjoy good health?..............................

Points in the boy's health requiring attention..................

Certificate by Parent or Guardian.—I am willing for my boy to attend the Camp. I have read the conditions and agree to abide by them. I do not hold the Camp authorities responsible for anything more than they accept in these conditions.

Signed ....
Date ....

V. Exchanges between British Schools.

5·1. The great opportunities offered by a carefully prepared, well thought out scheme of exchange will be evident from the accounts which are given below. Experience shows that success depends almost entirely on thorough preparation for the exchange beforehand. Sufficient geographical background material must be prepared, and the pupils concerned must have thorough instruction in the geography of the region they are to visit, so that they can use their opportunity to the greatest advantage by the fullest observation and integration of their newly acquired knowledge. The questionnaire method, so well exemplified here, will then attain its maximum usefulness. Note carefully that children find a general questionnaire confusing: the golden rule is a separate one, however short or simple, for each topic.

5·2. An exchange should follow a series of local studies in the school's home district. It should not be their first experience of out-door geography. It will not then be regarded as a stunt or a holiday, but as growing naturally out of the normal work of the school.

5·3. It takes time, even for adults, to learn the art of looking at things in the field with a geographical eye; and preliminary experience, especially with the all important questionnaire, will teach the children how to find things out for themselves, and how to make the most of their data. Other techniques, such as sketching rapidly in the field, need considerable practice to be effective. Thorough preparation both by the teacher and the child is essential.

5·4. Every effort should be made to put the ventures into the hands of Geography specialists. Their publicity value makes them attractive to Headmasters, and it is easy for what should be a skilled and constructive piece of geographical work to become, in the hands of the non-specialist, however well meaning, merely a superficial social experience.

5·5. Coach journeys offer a special opportunity for geographical work, but if they are to be successful, they must again be made the object of careful preparation. Ideally the teacher should have been over the route himself. Personal knowledge will enable him to prepare a questionnaire for the journey, which can be completed by observations from the coach or at selected stopping points. If the speed of the coach can be restricted to 15 miles per hour this work will be greatly facilitated. The provision of a route traverse, with suitable marginal information, to be used in conjunction with a one-inch Ordnance Survey map, or a simplified version of it, will add greatly to the value of the journey.

Lincoln—Chesterfield Exchange[1]

5·6·1. The Sincil Bank Secondary Modern Girls School, Lincoln, and the Old Road Secondary Modern School, Chesterfield were engaged in the Stead Research on Curricula in Modern Schools. Part of this was directed to exploring ways in which children's social experience could be widened, and ways in which the study of Geography and History could be made more purposeful and more relevant to the children's own experience and interests.

5·6·2. Each school chose its own method. At Lincoln they preferred to set the problem and to send the group out to watch and ask, rather then to supply them with more detailed and probably more accurate information. In Chesterfield, on the other hand, it was realised that the visitors, in particular, might find the wide variety of

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[1] This information is supplied by the former Headmistress of the Lincoln School, Miss J. A. M. Davis, and the Headmaster of the Chesterfield School, Mr. F. E. Crofts, and is published with their kind permission.

Derbyshire scenery rather confusing in a short-term study, and it was decided to give some background information on Derbyshire Geography and Geology at the outset. The problem with which the children were faced was to determine the effects of these factors on the life and work of the people of the area. The week's work of the visitors to Chesterfield was expanded during the following six weeks. Notes were written up, diagrams and charts were made. and, finally, an exhibition was arranged for Speech Day.

5·6·3. The following account of the exchange by the Headmistress of the Lincoln School was published in the *Times Educational Supplement*:—

"Twenty girls were selected from the second-year forms of the Old Road Secondary Modern School, Chesterfield, and from the Sincil Bank Secondary Modern School in Lincoln. These two groups changed schools for one week, joining in each school the 20 girls who remained to act as hostesses.

"Parents in both cities offered hospitality to the visitors, and the two L.E.A.s undertook to meet the cost of transport, admission fees and other incidental expenses. Each girl took an emergency ration book and a week's points, and all girls had their mid-day meal at school. A teacher accompanied each group and was also provided with hospitality.

"The week was spent in making a miniature survey of each locality. In Chesterfield members of the staff gave talks during the mornings on the geology, history, literature and industries of Derbyshire. Three afternoons were spent in coach journeys through typical Derbyshire scenery to Matlock, Tideswell, four dales, and to Castleton. The girls spent part of a morning in the Public Library studying ancient charters and other civic documents. Visits were paid to the weaving sheds of a textile mill and to the surface workings of a colliery. At least an hour daily was taken up in recording the previous day's experiences and for preparing maps for the afternoon's excursion.

"In Lincoln the week opened with films on Fenland farming, to give the agricultural background of the city. The following day, Sunday, many of the girls attended Evensong in the Minster, for so many centuries the focus of the city's life. A coach tour of the environs of Lincoln came next, during which the girls saw the oolite ridge, natural and cultivated fen and vast gravel deposits. A visit was paid to an experimental farm which was being organised on scientific and industrial lines. The girls saw a bulb farm in the making, a model dairy and a grass drying and grinding plant. Three mornings began with work on charts and maps, after which three visiting speakers, the Curator of the Museum, a local historian of repute and the Sheriff of Lincoln, gave the girls fascinating accounts of Lincoln in Roman and Medieval times and the growth of the engineering industry in Lincoln. The girls then traced out Roman remains in the city; they climbed the tower of the Minster. Then, dividing into four groups, they visited four local industries, a flour mill, a timber yard and two big engineering works. On the final day the whole party went over a modern brick works and, typical of Lincoln during the war, a R.A.F. station. On each of these visits the girls had certain items of information to collect which were then pooled for the use of the group.

"Evenings were spent in games and other social activities. Many parents visited the schools and expressed their interest in this new method of education. In the month succeeding the exchange many letters passed between the schools and it is hoped the link will be maintained. The material collected during the week has been the basis for History, Geography and English lessons. One school has staged a small exhibition aimed at bringing out the contrasts between the two communities of which the survey was made.

"The cost per head was in the neighbourhood of 12s. 6d. to 15s., including railway fare, bus and coach fares, admission fees and incidental expenses.

5·6·4. The details of the Lincoln Timetable were as follows:—

Saturday, May 11th. Arrive from Chesterfield at 11.14 a.m. Meet at school 5.30 p.m. Film show at school: Fenlands; Lincoln Cathedral.

Sunday, May 12th. Meet at Cornhill 2.45 p.m. Walk up the steep to the Cathedral. Evensong 3.45 p.m.

Monday, May 13th. 9.30-10.30 a.m. Group work on maps, charts, illustrations and diagrams.
10.30-12.15 p.m. Tour by coach of immediate neighbourhood of Lincoln.
12.15 p.m. Dinner at school.
1.0-4.0 p.m. Journey by coach to Glentworth experimental farm—model dairy—bulb farm. Grass drying and grinding plant—horticultural experiments.

Tuesday, May 14th. 9.30-10.50 a.m. Group and individual work on charts, etc.
11.0-12.15 p.m. Talk by Assistant Librarian at City Library on Roman Lincoln. Questions.
1.30-4.0 p.m. Exploration of Roman remains in Lincoln and visit to Museum.
6.0-8.0 p.m. Joint club activities.

Wednesday, May 15th. 9.30-10.50 a.m. Group and individual work on charts, etc.
11.0-12.15 p.m. Talk by Mayor of Lincoln on Medieval Lincoln.
1.30-4.0 p.m. Questions. Visits to Lincoln Cathedral and either Castle or Guildhall.

Thursday, May 16th. 9.30-10.50 a.m. As previous day.
11.0-12.15 p.m. Talk by the Sheriff of Lincoln on the growth of Lincoln Industries. Questions.
1.30-4.0 p.m. Group visits to Brayford Wharf and to *one* of (*i*) Hovis

Flour Mill; (*ii*) Newson's Timber Yard; (*iii*) Ruston Bucyrus; (*iv*) Ruston & Hornsby (Heavy industries).

5.30-6.30 p.m. Swimming at South Park Baths.

Friday, May 17*th*. 9.30-12.15 p.m. Journey by coach to (*a*) Waddington Brick Works, (*b*) Waddington Aerodrome.

1.30-4.0 p.m. Final group work on charts, etc.

6.0-8.0 p.m. Youth Club social at school.

Saturday, May 18*th*. Chesterfield girls leave by morning train.

5·6·5. At Lincoln the material supplied to the pupils included:—

(1) Very full questionnaire for each visit (2 examples appended).

(2) Maps and Sections.
  (i) Map of solid geology of Lincolnshire.
  (ii) Cross section of Lincoln Edge (*a*) N. to S. (*b*) E. to W.
  (iii) Geological section of Lincoln Edge.
  (iv) Map to show Lincoln as centre of road communications.
  (v) Map of Lincoln: rivers, canal, and railways.
  (vi) Environs of Lincoln.
  (vii) Map of Roman Lincoln.
  (viii) Street plan of Lincoln.
  (ix) Ground plan of Cathedral.
  (x) Map of Glentworth farm.
  (xi) Map of Brayford Wharf (to be filled with details of barges, cargoes, destinations, etc.).

Questionnaire on Mr. Auden's farm at Glentworth.

1. How big is this farm?
2. How many acres are (*a*) permanent pasture; (*b*)

Ley; (*c*) arable; (*d*) wheat; (*e*) vegetables; (*f*) fruit; (*g*) flowers?

3. How many (*a*) horses, (*b*) cows, (*c*) sheep, (*d*) pigs, (*e*) head of poultry?
4. What is the water supply like?
5. What is the nearest railway station and how far away is the main line?
6. How many (*a*) lorries (*b*) tractors are owned?
7. Is there any other road transport employed?
8. How often do the fields need to be limed?
9. How much lime is used?
10. How else can the quality of the grass be improved?
11. How often are the leys ploughed and re-sown?
12. How many times a season does the grass have to be cut?
13. How high is it when it is cut?
14. Why is it better food value when short?
15. What is in the grass which makes it good food?
16. What does the drying and grinding plant do in autumn and winter?
17. What is the market for grass-meal?
18. What breeds of cows do best here and why?
19. How much milk on an average does a cow give?
20. How much does the yield vary from winter to summer?
21. How much food does a cow need?
22. What happens to the milk before it is sent off?
23. How is it collected and where does it go?
24. How many men are needed to work a dairy like this?
25. Where did the bulbs come from?
26. What soil suits bulbs best?
27. What different sorts of bulbs are grown here?
28. Will they be grown in the same fields next year?
29. Can the same bulb be used next year?
30. Where do the flowers go to?
31. What type of transport is used?

32. What do the pickers and packers earn?
33. Where do they live?
34. What do they do when the bulb season is over?
35. What use is being made of the walled garden?
36. What crops are being grown under glass cloches?
37. What varieties of fruit are being grown?
38. What varieties of vegetables are being grown?
39. What signs of rebuilding do you notice?
40. What signs of a derelict estate are still to be seen?
41. Can a farm ever be as profitable, acre for acre, as a factory?

Questionnaire on Ruston & Hornsby's Engineering Works.

1. (*a*) What engines are made here and what are they used for?
    (*b*) What is the largest type of engine made? What is the smallest type of engine made?
2. (*a*) What raw materials are used?
    (*b*) Where do they come from?
    (*c*) How do they get here?
    Why are they more suitable than similar material nearer Lincoln?
3. *Core-making shop*
    (*a*) What is mixed with sea sand to make the cores keep their shape?
    (*b*) Why are the cores black-leaded?
    (*c*) Why are they only used once?
4. Why is a different mixture of sand used for the moulds?
5. How are the cores dried and how can you tell when they are completely dry?
6. *Moulding shop*
    (*a*) How does the pig iron get its name?
    (*b*) What else is added to the iron in smelting?
    (*c*) What vessels hold the molten metal?
7. *Fettling shop*
    (*a*) What work goes on in this shop?
    (*b*) What does "fettling" mean?

8. What parts of the engines are made of iron? Why
9. What parts of the engines are made of steel? Why?
10. How does steel differ from iron?
11. What is done to the steel so that it does not break easily?
12. What are the waste products of this factory?
13. Where do they go and how are they used?
14. What different methods of carrying heavy loads are used in these works?
15. What are the main processes in the building of an engine *after* moulding and forging?
16. Why is it that an inland town like Lincoln with neither coal nor iron on the spot has as its main industry engineering requiring coal and iron?
17. Is any use made of the river or canal for transport?
18. What articles come and go by road transport?
19. Do most of the orders for engines come from British firms or overseas?
20. Which country is the firm's best customer?
21. What is the most common type of accident?
22. How often does a fatal accident occur?
23. What care is taken of the workers' health and welfare?
24. Does this industry produce any special industrial disease?
25. (*a*) Is this an industry attractive to young men?
    (*b*) Do sons tend to follow their father's work?
    (*c*) What is the proportion of skilled to unskilled workers?
    (*d*) Which are the most popular and the least popular jobs?
26. What proportion of the workers use the canteen?
27. Is there a production committee? How does it work and what does it do?
28. What plans are being made to prevent unemployment when the present boom is over?

Cambridge-Lowestoft Exchange

5·7·1. In June 1948 the Notley Boys Modern School, Lowestoft, and the Coleridge Boys Modern School, Cambridge, carried out an exchange. 30 boys, aged 14-15, selected from each school, exchanged homes for a week, so obviating the need for ration cards. Transport was made by bus, the vehicles meeting at Ixworth, midway between Cambridge and Lowestoft. Here the boys met each other, talked, and selected their own guests. They then exchanged addresses, and completed the journey in each others' buses, so cutting down transport costs. This method of selecting the guests proved very satisfactory.

5·7·2. Most of the time was spent in visits. The Cambridge boys saw the fishing quays, boatbuilding yards, made an inspection of a Lowestoft drifter, and went sailing on Oulton Broad. The Lowestoft boys visited the Cambridge Colleges, saw the award of Degrees and diplomas at the Senate House, and visited several of the chief factories.

Hornsey-Great Yarmouth Exchange

5·8·1. In June 1948, St. Mary's School, Hornsey, and the Hospital Boys School, Great Yarmouth, both Modern Schools, made an exchange for a week. The general idea was to exchange homes, but when a boy was unable to accept a guest he was billeted on another volunteer parent, an arrangement which worked smoothly and well. The hospitality at each end was outstanding. Transport was provided by bus, the Yarmouth boys arriving at Hornsey in time for lunch, and their bus taking the London boys to Yarmouth, so cutting down the cost.

5·8·2. The Hornsey boys visited the Norfolk Broads, farms of various types, arable, fruit and dairy, the Fish wharf and various factories at Yarmouth, and spent one day at Norwich. The Yarmouth boys visited Hampstead

Heath, Kew Gardens, Hampton Court, Whitehall, and the South Kensington Museums. They saw Buckingham Palace, and had lunch at the Houses of Parliament as guests of Mr. E. Kinghorn, M.P. for Yarmouth. They were taken on a conducted tour through the City of London, and on a steamer trip on the Thames from Westminster to Greenwich, and spent a whole day at the Zoo.

5·9. It is evident that these last two exchanges were carried out on less ambitious and less directly geographical lines than that between Lincoln and Chesterfield, but they are all three valuable as showing the possibilities open to schools differently placed and circumstanced.

VI. Overseas Correspondence and Foreign Travel

6·1. Correspondence with pupils in schools overseas, either British or foreign, carried on by individuals or by a School Geographical Society, can develop very usefully. It serves a double purpose. In the first instance it is a help towards the attainment of one of the highest aims of Geography teaching—the fostering of a spirit of international understanding and goodwill. Ignorance of the habits, the outlook, and the problems of foreign peoples, or even of our fellows in overseas Dominions, is one of the most fruitful causes of misunderstanding between the nations—greater knowledge usually means closer sympathy—and no better way of dispelling such ignorance can be found than in correspondence between pupils in the schools of the countries concerned; whilst the consequent friendships that may be formed are a valuable contribution towards international good feeling.

6·2. Again, the study of the Geography of a foreign country or of a British Dominion may be greatly stimulated and vitalised by correspondence of pupils with boys and girls of their own age in the countries studied. It is desirable, of course, that the correspondence should have a definite geographical basis: descriptive accounts of the correspondent's life and surroundings may be given and requested. But it is not always easy to obtain just what is wanted from youthful letter-writers, and a considerable amount of tact and patience is required on the part of the teacher, in his rôle of supervisor of the correspondence, if the best results are to be obtained. On the other hand, a good deal of useful geographical information can be gleaned by an intelligent pupil from even casual and spontaneous letters, and many teachers will prefer to leave the correspondents largely to their own devices and to reduce their own oversight to the minimum.

6·3. In the case of correspondence with non-English-speaking peoples, the language difficulty is a serious one. But correspondence with French children is a regular practice in many Secondary Schools, and there is no reason why the geographical side of such correspondence should not be encouraged. Children of other countries, even of Elementary School age, are often only too glad to air their English.

6·4. Correspondence has been carried on between pupils of English Secondary Schools and those of English schools in Ceylon, the West Indies, and other Colonies, and even with African students. There does not appear to be much interchange of ideas with pupils in Dominion or American schools: it would be well, no doubt, if more of such correspondence were arranged.

6·5. After a few interchanges of letters it is very often found, to the teacher's disappointment, that the correspondence comes to a premature end. This is almost inevitable with most children of school age; but some seed of international understanding and geographical knowledge will have been sown, and the experience will have been well worth while.

6·6. From the purely geographical point of view foreign travel is far better than correspondence. The war, of course, destroyed the elaborate network of organization which had been built up, but at the time the Third Edition of this volume goes to press a fresh impetus has been given to journeys abroad and the number of school parties travelling to Western Europe is now considerably greater.

6·7. The School Journey Association and the Scout Movement hope to obtain reduced fares and other facilities which make the organization of such journeys an easier matter. The Central Bureau for Educational Visits and Exchanges, Hamilton House, Bidborough St., London, W.C.1, which is sponsored by UNESCO, is an Information Centre to which individuals or societies can apply for advice and assistance on the subject of educational travel abroad. It is ready to act as a mediator between intending travellers and Government Departments in order to remove all obstacles to foreign travel.

6·8. It is hoped that Geography teachers will be able to make greater use of these advantages in the future than they appear to be doing at the present time. Possibly one reason why arrangements are not more frequently made for Geography pupils to travel abroad is the necessity or, at least, the advisability of extensive and frequent travel on the part of the teacher of the subject himself. The field of geographical experience of a party of pupils must obviously be much more circumscribed than that of a teacher travelling independently. But the gain to the pupils through their first-hand acquaintance with, or even the sight of, such geographical factors as a glacier, a vineyard; or the market of a small country town in France or Germany, is incalculably great.

VII. Ship Adoption

7·1. It has long been customary for many teachers of Geography to use the Shipping News in the daily Press for the purpose of studying shipping routes and allied topics. The direct association, however, of a school with a ship in any widespread scheme is a comparatively recent innovation, although here and there a teacher has in the past been able to establish a contact of this kind. On general grounds, to follow intimately the voyages and activities of a tramp-ship is educationally much better than an association with a ship such as a liner engaged on a regular route. Indeed, tramp-ships penetrate the oceans from high latitudes to low latitudes and visit regions and ports that never appear in the schedules of ships working on a regular service. Moreover, personal contact between pupils and the personnel of the merchant service provides a human interest that lends reality to much that would otherwise be found relatively arid.

7·2 It was considerations of this kind that led to steps being taken to establish an organisation that could bring about the association of schools with tramp-ships and could also regulate the correspondence and other methods of linking school with ship that would result. Through the good offices of Mr. E. H. Watts, a prominent tramp-ship owner, four ships were allotted to respective schools of various types ; and the results of these contacts showed that pupils reacted with enthusiasm and that the willing co-operation of the Masters of the tramp-ships could be expected. Educational bodies, official and other, were approached, as also were shipowners and others interested in the merchant service, and a provisional committee on which were several representatives of the Geographical Association launched the British Ship Adoption Society[1] early in 1936. Despite many unhappy losses of ships during the Second World War, there are now some 800 schools associated with a corresponding number of ships. The ships available are unfortunately much fewer than the schools wishing to participate. Sister associations have been founded in Holland, Norway and Denmark and it is of interest that through the good offices of Masters of adopted ships, an increasing number of links between British and Dominion schools are being established.

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[1] Secretary : Mr. S. E. Britten, H.Q. Ship "Wellington," Temple Stairs, Victoria Embankment, London, W.C.2. Annual Subscription, £3 13s. 6d. Many Local Authorities make a block subscription, thus obviating the necessity for individual schools within their area making separate application.

7·3. It is obvious that the teacher of Geography has a special interest and function in connection with Ship Adoption, although it must not be forgotten that adopting a ship not only gives opportunities in relation to other subjects of the curriculum, but has a wide educational value in broadening the minds and interests of the pupils. There is also plenty of evidence that the Masters and personnel of the ships generally appreciate to the full the interest of young people at home in their life and work, and many show by their letters and the other material they send that they are prepared to devote much of their limited spare time to enthusiastic and thoughtful work on behalf of the schools.

7·4. Correspondence is the medium through which "adoption" principally works. The school sends letters to which replies are received. The letters from the ship provide much material for study and discussion and give rise to numerous questions that are usually incorporated in the next mail that is sent to the ship. Correspondence inevitably tends to be sporadic, as mails to and from a ship cannot possibly be other than irregular when it is not on a regular route and may be diverted from a proposed course by arrangements, relating to loading or unloading cargoes, made through the shipping company's offices at home. Nevertheless, after a relatively short time, a great amount of material is in general accumulated and the problem that confronts the teacher is how to make use of it.

7·5. The material may be classified roughly under the following headings:

(*a*) *General and Miscellaneous.* Details of the ship, age, tonnage, engines, fuel, equipment, handling and storage of cargo, etc.

(*b*) *Human.* The Master, his career and personal history; officers and crew; life on board; duties and spare-time occupations; incidents of the voyages, whether amusing or exciting, giving a background to the seamen's life, etc.

(*c*) *Geographical.* Routes followed, ports visited, canal transit; pictures of people and life in ports and in other lands; details regarding methods of production of commodities; the ship's log, instruments, weather observations, maps, charts, and the like. It may be added that pictures, post cards, specimens, and other objects of interest are often sent by ships, while schools usually show their interest in the ship by sending, especially at Christmas time, some gift to mark their appreciation. As "adoption" proceeds many opportunities of interesting and profitable exchange arise.

7·6. It is difficult to suggest how the Geography specialist in the Secondary School can deal in a satisfying and useful manner with the material that accumulates in this way without interfering with his established course, but he should certainly do his best to incorporate it in his lessons. Concrete suggestions of a rigid character are out of place and in practice it is found that the available material depends largely on the type of ship—tramp, tanker or cargo-liner. It is, however, certain that merely to accept correspondence as it comes, to mention its contents casually, or to post it on a notice board is not only doing a gross injustice to the scheme and to the ship, but throwing away opportunities of great interest and value to the subject. A particular difficulty in Secondary Schools arises from the fact that the geographical specialist takes a number of forms, and to deal adequately with the material in individual classes means that he spends much time in repetition. This is a specially difficult problem because discussion in each class, though clearly desirable, cuts badly into time that is too often unduly restricted. The following tentative suggestions are made in the hope that they may be of service, but it is realised that individual schools will work out their own schemes for dealing with the material in the way at once most useful and most economical of time.

(i) A senior boy or group of senior boys (or the Geographical Society if there be one) should be appointed to take general charge of the correspondence. The duties would include such things as compiling lists of questions; selecting letters to send to the ship; preparing maps for the notice board; keeping letters, documents, etc., from the ship duly posted and annotated on the notice board.

(ii) When correspondence, etc., comes from the ship or material is being prepared to send to it, a short statement might be made to the whole school at assembly and indications given of what individual pupils might do to promote the association of the school with the ship.

(iii) Duplicated summaries should be prepared from time to time for distribution in the forms. The first one issued should contain details relating to the ship, its equipment, crew, etc. Later summaries can be compiled that bring the correspondence up to date at suitable intervals. This is a great economy of class-room time. The summary can be dealt with in the lessons, perhaps illustrated with the aid of the epidiascope, specimens, etc. A class period or homework period can be allotted for letters or questions to be prepared by the pupils for later sifting when the next mail is sent to the ship.

7·7. Opportunities to make use of the ship and the illustrations of geographical matters that the correspondence provides should always be seized as they arise in the course of the Geography lessons. This is one of the most valuable features of "adoption," because the personal interest reinforces, in a way that is of special value, the points being made in the lesson. It is essential that correspondence and documents should be carefully filed and kept in a convenient place, so that they may be easily available when required; this applies equally to specimens, illustrations, maps and, indeed, to all the material that may be accumulated.

7·8. The quarterly bulletin of the British Ship Adoption Society, "Our Merchant Ships," is a useful and interesting publication and a valuable adjunct to both ship adoption and geographical work. It contains first-hand accounts, usually written by Masters or other officers of adopted ships, of voyages, ports, peoples and commodities as well as descriptions of the growth of important shipping lines and of their part in keeping the wheels of trade turning. It is hoped to make the bulletin available in quantity to schools for use in classes. The Society has also published, under the title "Seafarers, Ships and Cargoes,"[1] a book of selected first-hand accounts, and this will be available as a "background" reader. The Society from time to time holds exhibitions illustrating how ship adoption functions, to the interest and profit of both school and ship.

7·9. Already a considerable body of experience is being built up as the result of the large number of adoptions of ships by schools. The development of a generally acceptable technique has been hindered by the difficulties which arose during the war period, many of which continue. A special problem arises from the slowness of surface mails and the long delays thus attached to letters and parcels in the case of all ships not on regular routes, while it is obvious that the school is specially fortunate if its adopted ship puts in from time to time at a conveniently situated port. The practical teacher will make his own compromise between the ideal use of ship adoption and the special conditions attaching to his teaching and his adopted ship.

7·10. As soon as the information regarding the ship's course, ports of call, cargoes, etc., comes in it should be plotted on a wall map. More about the keeping of such a map record will be found in Chapter V, § 3·2·2.

[1] Edited by L. Brooks and R. H. Duce, University of London Press.

CHAPTER VIII

GEOGRAPHY TEACHING IN SECONDARY MODERN SCHOOLS

1·1. As a result of the Education Act of 1944 the Secondary Modern Schools are achieving parity with other forms of Secondary Education. Their importance lies not only in the fact that they are called upon to educate the great majority of the future citizens of the country, but also in that, being for the most part new in type and purpose, they offer a unique field for experiment in educational methods and choice of curriculum. The pivotal position of Geography gives it an important function to perform in the building up of the curriculum in these schools, but it is the content and method of the subject which give it its value for the mental equipment of the man or woman of the future, living as a member of a local, national or world community. In the words of the Surrey County Education Authority's Scheme for the Teaching of Geography in Secondary Modern Schools the "General Aims" in teaching the subject are:—"(1) To train citizens to visualise accurately the conditions under which the peoples of the world are living, (2) To encourage rational thinking about the political, social and economic problems of the world."

1·2. Not only is Geography the basis for Social Studies, but its essential field work offers opportunities for social and physical activity outside the school and brings the child into relation with his local heritage and environment. It can also play a considerable part in vocational guidance in its study of local occupations and industries.

1·3. Geography occupied an important place in the Senior School curriculum and there is no doubt that it will continue to figure largely in that of the Secondary Modern School. The integration of subjects, however, in the courses in Social Studies that are being devised, must be carefully watched by geographers. If these courses fall into the hands of those who lack geographical training or are unsympathetic to the subject, not only may the position of Geography be seriously affected but much of the value of the social studies themselves may be lost. In any case a good general grounding in Geography, taught as a separate subject, must precede its incorporation in a Social Studies course. The importance of Geography, indeed, in the education of the future citizen, its practical character related to the natural interests of children at all stages, and its value in education for leisure should ensure its prominent place in any curriculum.

1·4. The wide range of ability found in the Modern School compared with that in the Grammar School makes it essential that Modern School Geography must be distinct in method of approach and, to a large extent, in the way it is taught. Its content, too, may differ in detail from that of the Grammar School. Its syllabus should be planned afresh; it should be no mere diluted version of the Grammar School syllabus. Again, the water-tight compartments which so often separate such subjects as English, History, Science and Geography in the Grammar Schools, should be broken down in the Modern Schools, though rather by close correlation than by the submergence of the subjects themselves in some new item of the curriculum. Such correlation will not be easy in practice for, although Geography in the Modern School is and still will be taught largely by non-specialist class teachers, their ideas on the relation between the subjects of the curriculum are bound to be strongly influenced by their Grammar School upbringing. This throws an increasing responsibility on Head Teachers (again largely non-Geographers) who are ultimately responsible for the syllabus and the planning of the Curriculum.

1·5. Thus, while this memorandum has a bearing on

Geography teaching in any type of school, it has been considered necessary to devote a separate chapter to the particular needs and problems that arise in connection with the position and the teaching of the subject in the Secondary Modern School. Despite, however, all the freedom and the initiative apparent in the Modern School to-day, there are all too few published accounts of work that is actually being done, so that to survey adequately current practice in Geography teaching in these schools is by no means an easy task.[1]

The Nature of the Problem

2·1. One of the most serious problems of Modern School teaching is that presented by the great variation in the pupils' capacity, so that, while Grammar School methods may succeed with an A stream in a large school, they are clearly unsuitable for classes in which intelligence ranges down to the level of the Special School and which may contain pupils who can hardly even read or write. On this account alone one is forced to reconsider the approach to one's subject, especially in regard to the problem of making the best use of the child's own activity. This wider variety in ability and attainment of the pupils means, too, a wider variety in methods of teaching in a type of school where classes are still very large. The teacher of Geography has a particularly important contribution to make towards the solution of this problem.

2·2. To offset the difficulty of catering for extremes of intelligence and attainment in the pupils, the planner of the Modern School curriculum has the advantage of a greater amount of time available for each subject than in the Grammar School, with its crowded time-table and its examination pressure. Thus a further problem arises as to how this extra time may best be used. In Geography, to widen the field, to include more material than in the Grammar School syllabus is neither necessary nor desirable. Syllabuses are already too comprehensive to allow of much more than oral instruction. In designing the Modern School course there is need for a careful re-assessment of the worth of material and topics in the light of the generally agreed aims of Geography teaching, which can be accepted so glibly in theory and ignored so blatantly in practice. It is a time for reconsidering the principles, pruning the content, and trying out new methods of presentation designed to allow the child greater scope for active thought and practical occupation. There must be more room for discussion and simple research, with the less backward pupils at least, so that the child is encouraged to think, to talk, to find out information for himself and to express his results by the combination of oral, written and pictorial reports.

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[1] But see a Report by E. H. W. Briault and D. W. Shave on *Geography in the Secondary School.* Geographical Association, 1952.

2·3. In the past there have been attempts in Modern Schools to achieve parity with Grammar Schools by imitation and even, in some cases, by preparing candidates for the same examination; whilst the opportunities for these schools to develop their own approach and method have thus been missed. The scope for variation, such as that between rural and urban schools or according to the special interests of teacher and children, can be of great value to the Modern Schools. While this freedom exists, there is, at the same time, a tendency for schools to follow the mode of the moment. This can lead to slavish imitation of what may be suited to one school but not to another in a different environment and with different teachers. It is necessary for each school to work out its own scheme to suit its peculiar circumstances and outlook.

2·4. Another problem arises in regard to the older pupils of the Modern Schools. The raising of the school leaving age, at present to 15 and eventually to 16, gives the possibility of planning on a more generous scale and, with growth of social interests, a fuller opportunity to achieve in some measure the education for citizenship that is the primary aim of the Geography teacher. The extra years, for all but the most backward pupils, bring with them widening horizons and a real interest in vocation together with a maturing mind capable of responding to individual and group methods. Adolescents can see more easily the relations between the problems of their daily life, such as those of present-day local and world-wide shortages, and the facts of Geography. When it can be related to the situation of the times the subject assumes a value to such pupils that it has not had hitherto.

2·5. Now, for the first time, it is possible to educate on more generous lines the large percentage of the school population who are unable to obtain admission to the Grammar Schools, and Geography can take its full share in this task. The future status of the subject in the Modern Schools, indeed, depends on its contribution to the solution of the problems raised in the preceding paragraphs. A scheme for the teaching of Geography in such schools, carefully worked out with these considerations in view, should be a valuable aid to the planning of the education of the bulk of our future citizens.

Content

3·1. There is a growing tendency to consider the Modern School course as divided into two parts, (*a*) for pupils of eleven to thirteen years, (*b*) for those of thirteen to fifteen years. The basis of this division is both psychological, concerned with child development, and administrative, in view of the possible transfer of pupils to other forms of secondary education. The latter possibility suggests that in spite of differences in content and method there should be some form of correlation between different types of secondary school in the same locality.

3·2. It is in the second of the above periods that the opportunity occurs for the Modern School to develop its individuality unhampered, as it should be, by examination requirements. Eventual provision of part time education in the County Colleges will enable the Modern School to keep itself free from the danger of trying to cram in, often prematurely, what is regarded as the full content of Secondary School Geography. The later stages of adolescence will be the concern of the Colleges, where more mature techniques may be employed and where Geography as a social study can be developed more fully in relation to life in the community and its wider issues.

3·3. It has been generally agreed that the first two years of the Modern School Geography course should be concerned with Local Geography, the British Isles and World Regions, treated qualitatively. For the later period there have been many suggestions. Despite the variety in content that has been suggested, there is general agreement that the syllabus should be one of topics rather than one based on the more conventional regional treatment, which demands a power of synthesis that the child in the Modern School does not, as a rule, possess. It must be borne in mind that the last year is essentially organised on a basis of division into a number of separate units, so that completeness is obtained for each member of the class in spite of the staggered effect of pupils' leaving school as soon as their age permits. Smallness of numbers in the top class makes the use of individual methods much more feasible than in a normal class with other age groups. There have been many suggestions put forward as to the selection of topics for study by these older pupils. It is unlikely, however, that any suggested syllabus can be more than tentative, in view of the many adjustments in curriculum, equipment and staffing that are likely to occur in the near future.

3·4. The *sample study* is a device that has much to commend it. In principle it consists of the selection of a particular example to represent a whole region: a study of an actual Argentine estancia, for instance, takes the place of the study of the Pampas region of which it is typical. The method has a number of advantages:—

(1) It economises time.

(2) It gives reality to regional work by the inclusion of actual human detail.

(3) It is a corrective to the facile and often erroneous generalisation to be found in many textbooks.

It is essential, of course, that the sample should be typical and that it should be put in its proper regional setting. Good examples[1] are now obtainable by the teacher, and textbooks[2] are appearing which are based on this principle and available for Secondary Modern Schools.

Examples of Syllabuses

3·5. An example of a syllabus based on the topic approach runs as follows[4]:—

Year 1. Local studies ("actuality study"), Geography of human needs (bread, milk, etc.), leading to the problem of transport.

Year 2. The Geography of transport, with the Geography of engineering for boys, and the Geography of costume or of food for girls.

or The Geography of exploration, from original sources, for mixed classes.

Year 3. Industry and occupations of the British Isles and the Dominions, with reference also to colonial development.

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[1] Such as *Latin America – Countrysides and United Regions*, by Robert S. Platt. McGraw Hill.

[2] Notably Fairgrieve and Young's *Real Geography* Series, published by Geo. Philip.

[3]These Examples are given as they have been put forward, without alteration, and must not be regarded as embodying the Committee's considered views in any detail. Parts of these syllabuses will clearly be unsuited to the lower streams in many schools.

[4] Suggested by Miss F. F. Laidler in *Geography*, December, 1946.

Year 4. Geographical background of modern problems, *e.g.*, the Rise of Russia, the Negro Problem of U.S.A., the growth of Modern Japan, India, oil and power politics.

3·6. Another syllabus suggested by a correspondent is:—

Year 1. Local studies, related to a graded course in mapwork.
Selected studies of the Workers of the British Isles.

Year 2. Man and his environment, by type studies of World Natural Regions, with the emphasis laid on human detail.

Year 3. The Americas, working on a framework of Major Natural Regions, but also dealing with the main political units; Canada, U.S.A., Argentina, Brazil.

Year 4. Geography of countries important in the life of our times (outside the Americas); U.S.S.R., France, Germany, China and India.
Social survey of the school district.
Geographical background of current problems and world affairs. (Newspaper Geography).[1]

3·7. A syllabus of World Geography based on the concentric system[2] works from the British Isles to the World in general, each year with the stress laid on a different aspect—human, topographical, climatic and economic in turn. Thus:—

Year 1. A study of homes, food and clothing of peoples of different environments, compared and contrasted with our own. Local Geography, especially in relation to Mapwork.

Year 2. Emphasis is laid on Land Forms taught by visual aids and, where possible, by direct experience. The world distribution of major Land Forms. The influence of Land Forms on man: water supply, building materials, transport and distribution of population, related to local visits, where possible, and using local maps.

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[1] Suggestions for topics on World Affairs of a more advanced character will be found in Chapter VI, § 14·2.

[2] See Miss E. M. Coulthard's article in *Geography*, June, 1945.

Year 3. World outlook on climate, vegetation and animal life. Weather records, maps of weather and climate for the British Isles and the World. Effect of climate on vegetation and crops in the British Isles and the World; soil erosion, irrigation. Man in relation to Major Climate Regions.

Year 4. Normal Regional Studies.

3·8. There is sufficient variety in these examples to indicate the wide opportunities for experiment in content that are offered in the Secondary Modern Schools, unhampered as they are by the control exercised by examinations, with their tendency to impose a general uniformity of syllabus.

Teaching Methods

4·1. The wide range of ability and attainment coupled with intellectual inertia to be found in the Secondary Modern Schools make it necessary to use rather different approaches from those given in Chapter IV, which could only be used in these schools with a good A-stream class. Indeed the major problem lies in just this necessity for differentiating between the methods suitable for the A-stream and those suited to the less able groups. The work with the latter pupils will have to deal with fewer, simpler facts, must use less formal and logical methods, with less attempt to develop geographical reasoning, and must make more appeal to the imagination by the use of visual aids and simple descriptive extracts from travel books and similar sources.

4·2. There must be more talking, not by the teacher but by the class. With C and D streams especially, oral work is vital, because the duller child is less able to write than to talk coherently and speech will be his main medium in after life. The large size of classes, however, and the variety of ability within them often make this predominance of oral work difficult to achieve in practice. Smaller, graduated classes are necessary for effective teaching. In any case care must be taken to guard against irrelevance on the part of the pupil; and though the child with "a story to tell teacher" should not be unduly discouraged, he or she needs guidance along the lines of what is germane to the subject.

4·3. It is well to remember that many of the less able children are still in the Primary School stage of development, where more emphasis is laid on the study and exploration of the local environment and where use is made of their "urge" for collecting. This type of child likes to draw and his record must be of a more pictorial nature, in the form of sketch-maps, drawings and diagrams, with, perhaps, his own scrapbook.

4·4. The necessary sense of achievement that escapes the less able child, lacking in the power of comprehension and expression, when he is taught by formal methods, has been provided by the *project method.* By this method quite a considerable piece of work can be done in a short period as a result of co-operative activity in groups. It also has the advantage that it breaks down artificial barriers that exist between subjects taught in water-tight compartments and deals with topics as a whole.

4·5. The method and place of mapwork in the Secondary Modern School also present a problem. It is too lightly assumed that the child has an idea of the reality behind the map or diagram. There has been too little emphasis laid on the need for a graded course in mapwork, leading from the large scale plan of the classroom and the School surroundings to smaller scale maps and eventually to the highly generalized abstraction of the Atlas map. The Atlas has been treated too readily as a dictionary of places and its use as a gazetteer has been confused with map reading. The reality behind the map can only be realized if considerable time has been given to local map study.

4·6. There are two strands that should be kept side by side in the earlier mapwork, those of map *making* and map *reading*. Map making does not involve accurate surveying but rather the drawing of simple sketch plans of areas within the daily walking distance of the pupil. Even the large scale maps of the full Ordnance Survey editions are not simple enough for use at the preliminary stage. Duplicated outlines, simplified but accurate, based on the Ordnance Survey maps, must be prepared by the teacher. These can be used not only for map reading but also for the recording of information obtained during the course of local studies, as, for example, the positions of the various public utility centres or the use made of different fields. Map study is encouraged by the fact that the map has to be oriented correctly and read, before this type of work can be done. Practical work such as this leads eventually to the use of the full Ordnance Survey maps, on the six-inch, two-and-a-half-inch and one-inch scales.

4·7. With the increasing amount of touring done by the modern boy or girl after leaving school, encouraged by the facilities provided by such organizations as the Youth Hostels Association or the National Cycling Clubs, it is vital that they should be made familiar with the one-inch, and half-inch Ordnance Survey maps. This is education for leisure and should contribute to the better enjoyment of the countryside. The use of such maps will bring home the extent to which decrease of scale means a corresponding decrease in the detail shown. The study of the methods of representing relief used in the Ordnance Survey maps may be followed up by the making of a layer-coloured map of the home district, the realities of which may give a valuable if not necessary introduction to the layered maps of the Atlas.

4·8. Any Secondary School faces the problem of the very wide variation in the amount and nature of the work in Geography done in the tributary primary schools. Nowhere is this discrepancy more marked than in the amount of map reading and map making that has been done before the children enter the Secondary School. An estimate of the "map content" of a class can be made by setting such an exercise as the following: "Draw a map of an imaginary island, Treasure Island or whatever you like........." Suggestions should be given as to the type of things to be shown, but no information as to symbols used or methods of representation of relief. The variety of maps that may result from such an exercise is amazing. Some pupils will produce maps which include contours, layer colouring, and symbols similar to those of the Ordnance Survey, while others will be still in the picture map stage. Much profit may be obtained from showing a selection of the maps in the epidiascope and, after analysis by the teacher, inviting free discussion. In particular, the need for a standard set of symbols, for a title and key, and for an indication of direction arises from such a discussion.

4·9. There has in the past been a tendency to regard Geography as a purely informative subject and in the hands of non-specialist teachers methods as well as content have been influenced accordingly. It has not been sufficiently realised that, although geographical information is valuable in itself, there is far more in the subject than the mere provision of facts. In recent years, however, there has been a growing realization, strengthened by the experience of education officers with men serving in the Forces, that the generality of people are ill-informed on geographical matters, unduly prejudiced against foreigners and quite unable to think geographically. As a result of this, there have been many suggestions as to how greater reality can be given to the subject matter and how it can be presented as a whole that has some significance.

4·10. Two developments in particular stand out as of primary importance, an increasing use of visual aids and the first-hand study of local geography. Both these are admirable developments but with the former, in particular, the Geography teacher must be on his guard. There is a very real danger that the use of visual aids may be overstressed and the child left to play too passive a rôle, a tendency only too strongly encouraged by the cinema habit. Visual aids are valuable in the presentation of facts and the development of emotional attitudes, as well as in other ways which have been suggested above, but they should be no more than aids to the personal activity of the child. Geography is not so much a matter of the pupil learning his facts as of his learning to find out facts for himself, of his expressing himself orally, in writing or in pictorial fashion, in the pursuit of knowledge that has some relation to his interest and needs. The use of visual aids has been fully dealt with in Chapters IV and V and Local Geography in Chapters IV and VII[1], but a section follows on Field Work under the special conditions of the Secondary Modern School.

Field Work

5·1. The freedom from examination and other pressures gives greater opportunity for field work in the Secondary Modern School than in the Grammar School. Until April 1947 the Ministry's Regulations insisted that the consent of H.M. Inspector had to be obtained before any instruction was given off the school premises. This, together with the rulings of Local Authorities, greatly hampered field work in the new schools. Circular 140, however, revoked the Regulation and, by its advice to the L.E.A.s', enabled them to make this new freedom a reality.

[1] See, especially, the work done by Secondary Modern Schools under "V, Exchanges between British Schools," p. 359.

Furthermore it laid down that "Where an activity forms part of the school curriculum all expenses must be met as part of the cost of maintaining the school, in view of the prohibition of any fees in respect of education provided in a maintained or provisionally aided school."

5·2. Not all expeditions would necessarily come in this category, but the L.E.A. is able, under Section 53 (1) of the Education Act, 1944, to incur expenditure of this type subject to the Minister's approval. Circular 140 suggests that Authorities should prepare overall estimates for such activities on a yearly basis.

5·3. These new regulations should be made known more widely and Geography teachers should take every opportunity to bring pressure to bear on Authorities to implement the Circular according to its letter and spirit. They must emphasize that Geography is a practical field subject and that field work is an essential part of a school course.

5·4. While prior permission from the L.E.A. is necessary for visits or long excursions, many Authorities will allow, at the discretion of the headmaster, short expeditions of the whole class with the teacher in charge. Field work of this type will be carried out in the period allocated to the subject in the normal time-table. Much useful work can be done in these short period excursions where the character of the locality is suitable. If a double period is allowed to Geography, as for Natural Science subjects, much more, of course, can be attempted.

5·5. The type of field work will vary considerably with the resources of the district and the interests of the teacher and class. Whatever be the content, there are several important principles to be borne in mind in the organisation of the work:—

1. There should be field work at all stages of the course, related to the capacity and interests of the pupils. The emphasis on "collecting" in the earlier stages, on practical matters later on, and the final

attempt at a simple synthesis in the last year, is sound psychology. The shifting of the basis from mere observation and recording to the wider aspects which link with the vocational urge and the beginnings of a community spirit should be encouraged. Farm and industrial visits are most useful in this connection.

2. Valuable as the led excursion can be under a trained field geographer, there should be opportunity for simple observational work and map reading by the children themselves. A carefully prepared questionnaire has proved to be of great assistance in this connection in suggesting to the pupils what to look for. Map reading is essentially a field study and every opportunity should be taken of practising it.

3. Every opportunity should be taken to connect field work with the activities of an Explorers' Club, a Young Farmers' Club, a Scout troop or any similar society or organisation meeting outside school hours.

4. Field work often gives the opportunity for the non-academic child to achieve significance as the local expert on farming, or on some other topic that is being studied of which he has first hand practical knowledge. It should be noted that this is possible in class work, too.

5. Field work should be frequent enough for it not to present the distraction of a pleasure outing. The long coach expedition should not be regarded as an isolated event, undertaken perhaps once a year, but should be led up to by a series of shorter excursions.

6. Care should be taken to avoid mere spasmodic effort. Much actual local study is without real purpose or significance. Any opportunity that arises comparable with the work of the Land Utilisation Survey, which was largely undertaken by Senior Schools, should be seized upon. There is a great stimulus for the children in the knowledge that they are contributing to a national

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[1] See the "Lincoln-Chesterfield Exchange", Chapter VII, § 5·6·5.

scheme, that they are considered responsible enough to be entrusted with an important piece of work. Opportunities may arise for children to help in the planning of their district by assisting in such work as a traffic census. The suggested scheme for the study of Urban Fields of Influence[1] may provide scope for valuable practical work.

7. While every effort should be made to show simple examples of geographical control, there should be opportunity to study examples in which there are no obvious geographical factors at work but which may be merely the result of the whim or the initiative of a single person.

8. Local studies[2] provide an excellent opportunity for the integration of subjects. Their aim, which is the investigation of the life of man in the locality in relation to his environment, may best be achieved by combined work in a series of studies of the whole district from a variety of aspects. Integrated study of the type here envisaged is probably best suited to the last year of the Modern School course, when many schools do attempt something in the nature of a local survey. This involves children in a search for information not only from books but also from people; it offers scope for varying interests and abilities to be developed; and it leads up to a critical self-examination of the home community that is an excellent training for the future citizen.

9. Where local work is being carried on at an early stage there is a strong case for its close connection with a graded map course. As has been suggested above, not only is map reading essential in Local Geography but there is also a need to record observations in map form, using the large scale Ordnance Survey series or

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[1] See *Geography*, December, 1947.

[2] The pamphlet *Local Studies*, prepared by the Ministry of Education as a handbook to the visual unit, published by H.M.S.O., 1948, should be viewed by teachers not so much as an indication of what might be done as to start discussion on the content and method of such studies.

maps specially drawn. Thus both map reading and map making are provided for.

10. The increasing popularity of school camps and camp schools extending over periods up to a term in length, provides abundant opportunity for the teacher interested in geographical field work[1].

Sources of Information and their Uses[2]

The Textbook

6·1·1. The textbook is so often a mere summary, a collection of generalisations, that the child cannot assimilate it, still less delight in it. There are few textbooks[3] suitable for reading by the Secondary Modern School pupil that have first-hand details to give life and inspiration to the subject. The textbook is limited in value as a source because, as a commercial proposition, it has to provide material for the great bulk of teachers and classes. What is, at least in part, acceptable to all, is often far from being suitable to a particular class and its teacher. Limitations of space often reduce the account of a region or country to the barest essentials which, however accurate they may be, are so cold and lacking in feeling that they make no appeal to the child.

6·1·2. It usually falls to the teacher, therefore, to supplement the textbook to a considerable extent, both in actual teaching and in the provision of other sources to which the pupils can turn for that interesting human detail which transforms Geography from a subject that is merely informational to one that can fulfil the aims set out in Chapter II.

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[1] *The School Looks Around*, by Layton and White, published by Longmans, gives many practical suggestions for the content and technique of local studies in schools and as to the purpose they may fulfil, together with a detailed account of actual surveys carried out by a wide variety of schools. See also Chapter VII.

[2] Sources have already been considered in Chapter IV but in the following pages the subject is dealt with particularly from the point of view of the Secondary Modern School. See also Appendixes V and VI.

[3] But see Chapter IV, §§ 2·5·2, 2·5·3, and the books referred to in the footnotes.

Maps as Sources

6·2. The Atlas is, of course, one of the most important sources of geographical information and the teacher needs to give careful consideration to training his pupils to use it intelligently and not merely for looking up topographical details. Some of the requirements of a good Atlas are examined in Chapter V, § 6·1 ff, and its use is considered in Chapter IV, § 3·4. When the pupil has gained facility in their use the maps of the Ordnance Survey form an indispensable source for local Geography.

Other Sources

6·3·1. The following are some of the considerations to be borne in mind in the choice and use of sources other than maps and text books.

6·3·2. Use should be made of those sources which every ordinary person will use after leaving school—the popular press, the radio and the film. It is the duty of the Geography teacher to interest the child in these sources and to help him to use them intelligently. His geographical education will thus be continued after he leaves school.

The Press

6·3·3. The daily paper, the picture weeklies and the illustrated magazines can be a source of considerable interest and information. The enterprising teacher can obtain a steady supply from his friends and friends of the school after they have finished with them. They can be glanced over and cut up for geographical gleanings.

Pupils should be encouraged to make their own contributions, and pictures they have brought can be discussed in class or questions can be set on them.

Radio and Film

6·3·4. The radio programme often includes simple feature programmes, in addition to the Children's Hour and Schools Broadcasts, which the children should be encouraged to listen to. The use of good background films in the school helps in the education of public opinion, so that better films will be demanded by the film-goer. The teacher should watch the radio and local film programmes so as to be able to suggest suitable programmes to his pupils. This selection should help to widen the child's horizon and establish sound habits for the future. The discussion of film and radio programmes is an excellent method of bringing reality into the class-room.

Fiction and Travel Literature

6·3·5. The attempt should be made to interest the children in good, light fiction with a geographical background and in authentic books of travel. In this connection it is advisable, if not essential, to work in conjunction with the local library. Libraries will often stage special displays of books and give talks to groups on the use of the library. In addition, Municipal or County Libraries also provide small loan collections dealing with special topics. Where possible such a collection should be hand-picked by the teacher at the library headquarters.[1]

Simple Reference Books[2]

6·3·6. The pupil should learn to use reference books and to seek out the information he requires from the school or local library. The body of information itself is of less importance than the discovery of how and where to find it out.

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[1] See also under "Individual Work", Chapter IV, § 15·1·2.

[2] The new *Oxford Junior Encyclopædia* should prove particularly useful in school.

Pictorial Illustrations

6·3·7. The use of pictures has been fully discussed in Chapter IV, § 3·5, but it may be noted here that there is a case for a graded course in the use of pictures, particularly in the Secondary Modern School. Facility in picture interpretation involves a considerable amount of oral practice with the teacher in looking at pictures geographically before they are extensively used as sources. Pictures must be carefully selected to show the typical rather than the unusual or picturesque; and they must be chosen to suit the age of the class. When they are used as sources it is usually advisable to give suitable titles to the pictures. When questions are being asked about individual pictures it is advisable, too, especially with the more backward pupils, to attach the questions to the picture. This should be done, for instance, when the pictures form part of a wall display, where it is essential to choose a few good pictures well spaced around the room. Some teachers, in this case, organise a competition for the best answers to the questions and there is no doubt that this serves as a stimulus to picture interpretation. For simultaneous study by the class as a whole the picture is projected by means of episcope, diascope or film-strip projector. (See Chapter IV, §§ 5·1, 5·2).

Museums

6·4·1. The Museum, whether public or possessed by the school itself, should be an increasingly important ally to the teacher of Geography. The subject of the school museum has been fully dealt with in Chapter V, § 4, and reference has been made to the importance of visits to public museums and to the use of the Imperial Institute collections (Chapter IV, § 3·7). It is not impossible for Secondary Modern Schools to build up, through the years, their own museums, to which the Geography Departments should make a major contribution, but, in general, and for the time being, such a museum will be rare. In any case, the public museum can provide extensive relief models of a local region, models of engineering works, docks, canals, etc., and of manufacturing processes, dioramas and working models, such as that showing earth-sun relations, and other exhibits whose large size and cost would make it impossible for any ordinary Secondary School to house them.

6·4·2. A recent development of great potential value is the Museum Service, such as that instituted by the Derbyshire Education Committee. Many schools, particularly in rural areas, which are not in a position to establish their own museums and have no easy access to public ones, can yet have most, if not all, of the advantages of schools more favourably placed through the use of the Museum Service, which makes periodic loans to schools from a wide range of exhibits. Comparing the functions of this service with those of the public museum, the Derbyshire Authority, in its interesting brochure on the subject, points out that a loan service makes a more limited and specialised contribution than a public museum, but has the advantages that the exhibits are brought into the pupils' normal environment without the distraction of a class visit to an outside objective and that they can be seen at close quarters and be handled by the pupils. It may be noted that, in any case, the careful study of a few exhibits is most useful training for the right approach to the complexity of a large museum. It implies that, in a visit to a public museum, the teacher should select for study a few exhibits essential for his purpose rather than allow the pupils to scatter their energy in attempting to assimilate the whole collection at one visit.

6·4·3. For any Schools Museum Service to be effective there must be a wide variety and a large quantity of loan material available, but, with this requisite assured, it has the great advantage that the teacher is able to obtain illustrative matter to suit the special requirements of any particular stage of his course. Geological specimens, specimens of products, models, such as those illustrating physical geography, figures dressed in correct costumes of other lands (Eskimo, etc.), dioramas showing agricultural and other activities, are some of the exhibits available to the Geography teacher under the Derbyshire Authority. Teachers may choose their exhibits from a catalogue or may visit the Museum Headquarters for the purpose. It may be noted that this service includes the loan of maps, prepared to suit special requirements, charts, pictures, lantern slides, film-strips and films. Such a comprehensive scheme must be of inestimable benefit to the teachers of the county.

6·4·4. In Modern Schools, even more than in Grammar Schools, with the greater need to supplement the appeal to the imagination by the experience of the visual and tactile senses, the opportunity to examine and handle museum exhibits is particularly valuable. Suggestions put forward in the Derbyshire pamphlet, moreover, make clear the Authority's view, with which we whole-heartedly agree, that the use of museum material, to be effective, should be carefully planned, and care be taken to guard against its misuse. For instance: "material should be selected to fit into a previously planned lesson or series of lessons. Exhibits should never be used as a core round which to build an isolated lesson." Again; "slavish copying by children of material obtained from the museum is not encouraged, although the value and importance of children taking part in the preparation of visual material of all kinds is recognised. This experience is often given to Derbyshire children by encouraging them to supplement material supplied by the Museum with models, drawings, diagrams, scrap books" —and, may we add, maps—"and so on, made or obtained by the children themselves." The value of such "hand and eye" work is brought out, again, in another note:—"Opportunity should constantly be provided for children to handle material. A great deal is to be learnt from the texture and weight of such things as geological specimens, pieces of craft work, and so forth. Not only can the student learn more of the particular thing he is handling, but he can, at the same time, become accustomed to the proper and careful way of touching and handling delicate objects and by this means he can acquire a respect for these things." Such a scheme as this, closely related as it evidently is to the needs of the teachers, has so much to recommend it that it is to be hoped that the example of the Derbyshire Committee will be followed by all County and other Authorities responsible for wide areas who have not already set up a Museum Service. Where this is so, it might be well for Teachers' Visual Aid Groups to consider the advisability of forming the nuclei of local collections of exhibits, in order to demonstrate their value to the Education Authorities for their areas.

Teacher's Reference

7. It is particularly in the teaching of the Geography of current affairs, so important in the last year of the Secondary Modern School course, that the teacher feels the need for accurate unbiased information to counteract the inaccuracies of most newspaper opinion and counter-opinion, and a list of such sources, together with other books of special use to the Modern School teacher, will be found in the Bibliography, Appendix V.

Geography and the Integration of Subjects

8·1. At the time this volume is going to press, courses in Social Studies are increasing in popularity, especially in Secondary Modern Schools. While there is general agreement on the need to correlate subjects, not every one favours the new trend as it develops in practice. Integration for social studies implies the dovetailing of the work of History, English and Geography teachers in the drawing up of a common syllabus. Those who are concerned for the contribution that Geography has to make in education must be alert to see that the essential content and techniques of the subject are not lost or severely curtailed. In order to ensure that there is no sacrifice of geographical principles and methods, the Geography teacher in the Modern School would be well advised to equip himself to undertake social studies work with this end in view. The geographer is in many ways the best person by training and attitude of mind to achieve the necessary balance of subjects that integration implies.

8·2. There appears to be a tendency at present to start Social Studies at too early a stage in the Modern School course. It is essential that such integration should not be attempted until the pupils have obtained a grasp of fundamentals through at least a two-year preliminary course in Geography as a separate subject. Unless this is insisted upon, not only does the pupil run the risk of failing to acquire a proper Geographical outlook but also much of the value of the Social Studies course is lost, through his lack of grounding in geographical techniques, such as map reading and making and picture interpretation, and in elementary knowledge of geographic influences on human conditions and relationships.

CHAPTER IX

GEOGRAPHY AND GENERAL CULTURE

1. The main function of this volume is, by its discussion of the scope and practice of Geography teaching, to contribute something towards improving the general standard of such teaching and increasing its efficiency. The measure of efficient teaching, however, is not mere examination success but the degree to which its highest aims are realised. Thus, though some of our pupils may achieve academic distinction, or, by applying their knowledge of our subject to the practical affairs of life, may reap material rewards, the educational value of our teaching must be reckoned by the extent to which the great body of those whom we have taught show a wide and generous interest in affairs at home and abroad and are active in promoting the welfare of their fellow men. Hence it is only fitting that this concluding chapter should re-state the ultimate aims of Geography teaching, and attempt to place them in their proper setting within the conception of human progress as a whole which is, presumably, the final object of all education.

2. Unfortunately there is a wide diversity of views as to what is meant by "culture". In Western Europe culture was often associated with particular studies, the exclusive property of a small section of society, limited to the purely intellectual appreciation of the higher levels of art, literature, music and philosophy, having no regard to the lower levels of life or to primitive peoples whose culture embraces nearly the whole of their activities. On the other hand, the concept of culture in Soviet Russia and in the countries dominated by her is an artificial product, moulded by political expediency and bound up with the Marxist ideology. It is true that Russia fosters elements of local "cultures" which are picturesque and politically innocuous, but anything that does not accord with the pattern deliberately imposed by a highly centralised administration is quickly eliminated.

3. As it is obvious that "culture" does not have the same meaning in every part of the world, it is necessary to explain what we mean by the term. The most comprehensive definition is that of the anthropologist, who includes all the factors, both material and spiritual, which distinguish one way of life from another.[1] In this sense "culture" includes every aspect of life within the group—ideas and crafts, beliefs and customs, implements and consumers' goods, traditions and constitutional charters for the various social groupings—a vast apparatus, partly material, partly spiritual, by which man is able to cope with the specific concrete problems which face him. The culture of the individual cannot be separated from that of the group, which, in turn, affects the whole of society. As society becomes more complex the simple cultures which arise as a direct response to man's biological needs develop into a great variety of secondary and derived cultures, which not only embody the results of man's adaption to his physical environment but also show the development of his criteria of beauty, truth and wisdom.

4. While not necessarily endorsing the anthropological definition, we have assumed that there is such a thing as General Culture, general, both in the sense that it is not confined to a particular branch of knowledge, and also in that it is world-wide, transcending the boundaries of nationality and language. The heritage of Science, of the arts of Literature, Music, and the rest, has long been regarded as free to all mankind, and, in spite of some recent tendencies towards reaction, this international heritage cannot but be extended indefinitely with the expansion of knowledge.

5. Geography, as a science, has its contribution to make to this body of knowledge, but it has, too, a special function to perform. By its study of the different peoples of the world in their regional environment it can help to interpret the contribution of these peoples to world culture, whilst, at the same time, by showing their economic and cultural dependence upon one another, it can help to bring about that realisation of world-wide interdependence which is, surely, a necessary accompaniment, if not an integral part, of general culture as the term is herein understood.

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[1] See *A Scientific Theory of Culture*, B. Malinowski, Univ. of N. Carolina Press, 1944.

6. Fear of foreign influence and hostility to foreign institutions are rife to-day, largely owing to ignorance of what other peoples are thinking and of how they are living. Various international conferences of educational, scientific, and other workers, and international committees such as those of U.N.O., are, it is true, doing much to remedy this state of things; but there are still many ways in which Governments must learn to work together if obstacles to human progress, such as disease and war, are to be banished, and confidence and mutual service take the place of fear and aggression as the main springs of national conduct.

7. On the practical and material side there are, already, a number of international organisations, such as the Postal Union, whose services are generally accepted as necessities of modern civilisation; and every civilised country is indirectly helping to raise the standard of living throughout the world. The greatness of a nation may, indeed, be measured by the services which its people have rendered to the world as a whole, and as this leads, almost inevitably, to receiving in exchange the best that the rest of the world can offer, it is clear that the development of extra-national service has very definite advantages even from a purely national point of view. The raising of backward peoples to a higher standard of civilisation, and the utilisation of the rapidly increasing amount of human leisure are both problems of world-wide importance which require serious attention and sympathetic action from the leading civilised nations. As the majority of such problems have a geographical aspect, it may well be that the services of those well equipped with a knowledge of Geography will be required to assist in their solution.

8. If we consider the present state of world society, we are reluctantly forced to the conclusion that the instruction given in the schools, in this and in other countries, has done little as yet to establish a general understanding of the interdependence of mankind. In the second edition (1939) of this book the following quotation from the columns of a leading London newspaper gave some indication of the feeling that education had failed, hitherto, to promote this essential condition of civilised life.

"The patient, stupid public donkey has, unknowingly, worked for the coming war—betrayed consciously and unconsciously by Governments, capitalists, *educationists*, and, finally, by itself. . . . If the coming war is to be crushed, it can only be crushed by crushing those who have willed and worked for it from a diseased conception of self-interest. These are the real enemies—the enemies of all people of every race and condition. . . ."

9. The intention of the writer of this sweeping indictment was clearly to create alarm, but, when all due allowance is made for exaggeration, it must be admitted that there is still a substratum of truth in the charge that, "consciously or unconsciously," "educationists" have failed to eliminate a "diseased conception of self-interest" from the minds of those who have passed through the schools during the present century.

10. Teachers in general, and Geography teachers in particular, must accept some share of the blame for this condition of ignorance and misunderstanding, no less than for the condition of indifference which is, perhaps, as common and as dangerous; although to place the whole or even a large part of the responsibility on their shoulders is manifestly unfair. Of all who are actively engaged in the work of education, none are more directly concerned than teachers of Geography in spreading a knowledge of the life and thought of mankind, and whatever be the nominal aim of the school Geography course, nearly all teachers of the subject are coming to realise, if they have not already done so, that the study of Geography must lead to a recognition of the interdependence of the whole human race. But a mere passive recognition of the fact is not enough, and the teaching of Geography, as of many other subjects, must be ultimately ineffective if it ignores the necessity for the development of a sympathetic imagination. As one of the foremost writers of his day, Ernst Toller, puts it: "Die wichtigste Aufgabe künftiger Schulen ist die menschliche Phantasie des Kindes, sein Einfühlungsvermögen, zu entwickeln, die Trägheit seines Herzens zu bekämpfen und zu überwinden."[1]

11. It is the opinion of this Committee, therefore, that Geography teachers will have failed in their task if they do not succeed in training good citizens in the widest sense of the term,[2] and that they should be conscious of this aim at every stage of the course. At the same time care must be taken to make the training appropriate to the stage of development of the pupils, and no attempt should be made to enter into a discussion of the moral principles involved. Indeed, any attempt to derive direct moral lessons from the teaching will defeat its object, especially in the case of younger pupils, in lower and middle forms, who have developed neither a critical outlook nor the ability to generalise on what lies outside their own limited experience. At this stage, moreover, children are easily influenced by the personality of their teachers, who may

[1] "The most important task of the schools of to-morrow is to develop the child's imagination, his power of sympathy, to combat and to conquer his 'laziness of heart.'"

[2] "To be educated as a citizen is to have in one's mind a working sketch map of the world one lives in, to have a general notion of where one stands in relation to the historical, economic, and sociological processes going on around one." (From a review by Kingsley Martin of Cole's *Intelligent Man's View of Europe To-day*, *The New Statesman*, September 30th, 1933.)

do irreparable harm by inducing their charges to support "causes" which only the adult mind can fully understand.

12. It is the teacher's business to supply a background of organised knowledge and to encourage a healthy scepticism which will tend to make the older pupils proof against such intellectual anodynes as the slogans of the newspapers and the sentimentality of the films. His great problem is to get young people to *think* and to maintain a critical attitude towards mere expression of opinion, to investigate facts and to analyse generalisations before accepting them as established truths. On the other hand, the pupils' outlook should be widened and their imagination stimulated by what they learn, so that the idea of world progress should be accompanied in their minds by a sense of their own responsibility for its advancement. Mental development along these lines is particularly important at the advanced stage, but this has already been dealt with in Chapter VI.

13. The education of the youth who leaves school at the age of eighteen is not complete, and it is important that those who do not undertake more specialised work at the University should retain their interest in and maintain their contact with geographical thought, for there are few subjects which possess so great a cultural value as Geography. If, as the principal of our largest university has declared, Geography is a "philosophy of life," it is unfortunate that so little provision is made for the further study of the subject by those who do not enter the universities. The conditions of modern life do not always allow young men and women to retain a world-wide point of view. Narrow prejudices are fostered and many fail to exercise sound judgment in civic and national affairs. For those who, after leaving school, are no longer compelled to submit themselves to disciplined study, opportunities should be provided under competent teachers for widening their culture. Though a network of institutions for adult education extends over the greater part of the country, Geography is seldom a subject of study, with the result that the world-stage of human activity tends to be ignored. Apart from scientific research into the influence of geographical factors, which may be safely left to the universities, there is an urgent need for a more extensive appreciation of the cultural aspects of Geography and a greater provision for its study in institutes which provide adult education. Thus deficiencies may be made up, and the young citizen who has had an incomplete training at school may arrive at definite standards of comparison and bring a sound judgment to bear on everyday affairs.

14. A recent development tending in the direction of a fuller realisation of the interdependence of mankind is the establishment at certain universities of departments of International Affairs, with chairs or lectureships in the subject. But, if the considerations outlined in the preceding paragraphs be borne in mind, there is no reason why the conscious development of interest in international affairs should be confined to university students. Pupils in Secondary Schools may quite easily be interested in the development of international intercourse and some of its attendant problems. Children who live in Eastern U.S.A. and in Western Europe, in cities where the houses possess electric light, baths, indoor sanitation, with well-stocked shops, public libraries and cinemas, theatres, and sports grounds within easy distance of their homes, may learn to realise that the conditions which they enjoy are not found everywhere: that as soon as they leave the densely populated countries which border the shores of the North Atlantic Ocean, the standards of material comfort fall; that, except in the largest cities, the advantages such as sanitation, to which they are accustomed, cease to exist, while means of communication become less frequent; and that over the greater part of the world there are neither roads nor railways. Thus it is the business of the teacher of Geography to bring the pupils to see the complex organisation of material civilisation by which their lives are regulated, and to realise its dependence, to a very large degree, upon co-operative action which extends beyond the homeland. The difficulties which tend to obstruct fruitful intercourse between inhabitants of different lands should receive attention, and reference should be made to such matters as the responsibility of the more enlightened communities for raising the material equipment and widening the mental outlook of the backward peoples.

15. Though it is claimed that the great value of Geography is that it can be made to provide a basis for the understanding of many economic, social, and political problems, the criticism has been made that the Geography usually done in the fifth year by the future citizen is hardly of the fullest value to him (i) in his reading of newspaper articles and books during the years immediately following his departure from school, (ii) in similar reading when he has attained the status of a voter, or (iii) in helping him at any time to understand, and to form a sound opinion upon some proposed national legislation or some world problem or movement. The course should have as direct a bearing as possible upon matters which will, sooner or later, be forced upon the young citizen's notice.

16. The universities are fed by the schools, and it is quite possible for the Grammar School course in Geography to lead by appropriate steps to the University course in International Relations. In particular, the former Higher School Certificate Course (Group E) of London University, in which Geography was a principal subject, with slight modifications could be made to form a serious introduction to more highly specialised work at the University. The subjects of this Advanced Course included Economics, Economic History, French or German British Constitution, and Geography. A Higher School Certificate including these subjects exempted students proceeding to the university from the Inter. B.Sc. (Econ.) Examination. There appears to be no reason why this course, or similar courses, should not be made the stepping-stone to university specialisation in International Relations.

17. Such a natural development of existing courses would do much to ensure an adequate supply of university-trained teachers of International Relations, whilst, at the same time, this department of university work appears to be peculiarly suited to carrying on at a more advanced stage the kind of Geography which is taught in the Grammar School.

18. The study of International Relations in the university has two objects: the encouragement of the students' desire for intellectual training and the fostering of impartial investigation of social phenomena. With this end in view, the course should include:

(1) International History—based on modern world-history and with special emphasis upon diplomatic relations.

(2) Economics and the Theory of International Trade, including Currency and Banking.

(3) The Structure of International Relations—a study of the factors which influence international conduct.

(4) Principles of International Law: its history and philosophy.

(5) The Growth, Structure, and Practice of National and International Institutions.

(6) The Geography of Social Relationships.

The last should embrace the development of human societies in varying geographical environments both of the past and of present times. It should include also a full treatment of the social and political implications of the world's present economic development and should attempt to evaluate the influence of geographical factors in present-day civilisation. Special attention should be paid to the relationships which exist between the Commonwealth of British nations and the other nations of the world.

19. It is beginning to be realised that the tendencies of the modern world have made the study of international affairs a matter of extreme urgency. There is already in existence a co-ordinating committee for international studies in Great Britian, which has as its object the encouragment of such studies in Universities, Training Colleges, and Schools, and recently there has been a considerable extension of facilities for work of this kind.

20. The cultural value of Geography teaching is, however, not confined to the development of a worldwide outlook. The most important cultural element in education is that which forms the character of the student's thoughts and desires, inducing a concern with wide impersonal objects, and not merely with matters of immediate subjective importance. As has been mentioned above "culture" has been generally understood to include the possession of a sympathetic appreciation, partly intellectual, partly emotional, of the universal truths expressed in art, literature, philosophy, science, and religion. Thus, for long periods of time, under stable conditions of society, culture has taken a contemplative and leisured form. But with an age of transition like the present such a passive stage of culture is clearly out of harmony, and the tendency is to abandon it for a more dynamic type. Change is the keynote of modern life, and there is little inclination to-day towards a purely static form of general culture.

21. Many of the great Geographers of the past have been both philosophers, seeking universal truths, and, at the same time, men of action, engaged in commerce, conquest, and colonisation. Their ideas often took shape under the stimulus of an ever-changing environment. The frequent modifications to which the fundamental concepts of Geography are subject illustrate in a striking manner the revolutionary changes in man's response to his environment which are taking place at the present time. The violent social upheavals, as well as the slower but equally important transformations which occur in the physical habitat, give to Geography a dynamic quality which is almost unique in school work. Thus it is not enough for the student to appreciate the universal characteristics of a more or less stable civilisation; he should also be prepared to assess the probable effects upon human activity of the discovery of new lands, new inventions, and new processes. His cultural outlook is thereby extended not merely in space but also in time, and brought into conformity with the spirit of the age.[1]

22. By the time a pupil completes his Grammar School course he should have grasped certain general principles, and have acquired certain habits of mind which should enable him, when his experience has ripened and his judgment matured, to exercise his functions of citizenship with efficiency, with understanding, and with a wide tolerance. The properly educated citizen should have learned that it is within man's power, by persistent effort, to gain a measure of control over his environment.[2] He should be interested not only in the preservation of what remains of the highest cultures of the past and the safeguarding of what is best in the present, but also in further advance towards something higher still. His training should warn him that cultures of high order have been destroyed in the past and that tendencies destructive of human progress exist in the present. It should prevent his being misled by political casuistry, by popular fallacy, or by self-interested propaganda. It should help to make his thinking rational and effective. It should lead him to realise that he is not merely a spectator of world affairs, but an actor on the world stage, one upon whose judgment and skill the future of world civilisation depends.

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[1] The scale on which Geography is developing is so extensive that the amateur Geographer is sometimes able appreciably to extend our knowledge of the subject, and thereby to experience with his professional brother some of the joy that comes to those who chart untrodden ways. The fact that students frequently undertake a minor, but nevertheless vitally important, share in original research furnishes them with standards of comparison of considerable value.

[2] As far as possible the student of Geography should be encouraged to examine without prejudice the rival views of the determinist and possibilist schools of geographers, for although to a certain extent it is true that "man is a creature of his environment", it is also true that "faith (and the uneconomic expenditure of energy) may remove mountains".

23. If, then, this be the ultimate aim of education, the influence of Geography is clearly of fundamental importance. The purpose of this memorandum will have been served if it contributes in some degree to the improvement of the teaching of the subject and to the recognition of its value as a factor in the education of the citizen of to-morrow.

APPENDIX I

EXAMINATIONS

Internal Examinations

1·1. The setting of internal examinations serves two purposes:—

(*a*) To ascertain pupils' progress at intervals suitable to the conditions in individual schools.

(*b*) To give practice in answering questions under external examination conditions.

1·2. Internal examinations are usually formal and written, though less formal examinations, written or oral, can also be of value. In the formal written examination the types of question fall under three main headings: (i) the essay type; (ii) the categorical type, in which each question is divided into sections requiring brief answers, and which may also include an outline map wherein certain insertions are to be made; and (iii) the practical type, e.g., the interpretation of maps, graphs, pictures, etc., or the drawing of sketch-maps and diagrams. They are based on the teacher's own syllabus and are to a large extent for his information.

1·3. As already suggested in Chapter IV, §8, it is highly desirable to conduct frequent tests of short duration in addition to examinations held at comparatively long intervals. These tests will vary in form as much as do the questions in a full-length examination. Prominence should be given to testing pupils' ability to draw sketch-maps of important areas and to fill in outline maps with required locations or distributions. Other suggestions are given in the paragraph referred to.

1·4. An efficient technique for setting and marking internal examinations is of the greatest importance, especially in view of the policy of the Secondary School

Examinations Council that pupils sitting for the General Certificate of Education examination should not take a subject at a lower level before attempting it at a higher one. It is very desirable, therefore, that teachers should themselves be able confidently to assess the abilities of their pupils before deciding whether they should embark on an advanced course. In any case, justice to pupils demands that at all stages their relative merits should be fairly estimated. The ability to do this is to a great extent the product of experience and experiment. Thus, while the allocation of marks is relatively simple in answers to questions of the categorical type, much less rigidity and, therefore, a great deal more judgment on the part of the teacher are necessary when dealing with pupils' sketch-maps and, to an even greater degree, with answers of the essay type.

External Examinations

The Old and New Examinations

2·1. Until the school year 1949-50 the principal external examinations with which most Secondary Grammar Schools were concerned were the School Certificate and the Higher School Certificate.

2·2. For a majority of the pupils the School Certificate examination, taken at about the age of 16 (though often at a lower age), was a leaving examination, accepted by a large number of employers as sufficient evidence of a general education, and by some professional bodies as equivalent to their preliminary examinations. Under certain conditions the School Certificate, either alone or in conjunction with the Higher School Certificate, qualified the holder for entry to a University. It was also an essential qualification for a number of government and local government appointments and for certain grades in the Forces.

2·3. The Higher School Certificate course offered facilities for pursuing more advanced studies in chosen subjects, and State Scholarships were awarded on the results of the H.S.C. examinations.

2·4. The Norwood Committee on Curricula and Examinations, reporting in 1941, proposed the complete abolition of external examinations after a transition period of seven years. The Secondary School Examinations Council, however, though regarding this proposal with sympathy, recommended that the S.C. and H.S.C. examinations should be replaced by a single examination for a General Certificate of Education, to be conducted by the various external Examining Boards. This was accepted by the Minister of Education, and it was put into force in 1951. The scheme provides for subjects to be taken at three levels: Ordinary, Advanced, and Scholarship. Other decisive changes are, first, that a pupil may not enter for the examination who is less than 16 on the 1st September of that year[1]; and secondly that a certificate is to be awarded to every pupil who reaches the " pass " standard in any subject at Ordinary or Advanced level. There is considerable divergence of opinion amongst teachers on both these proposals, but this is not the appropriate place to discuss their full implications.

2·5. The results of the General Certificate examination, like those of the former H.S.C., will be used both for purposes of University entrance and for the award of State Scholarships. Apart from Oxford and Cambridge, where special conditions apply, all the Universities in England and Wales have agreed on a common scheme for University entrance, the general requirements being passes in English Language, a language other than English, in Mathematics or an approved Science, and in two or three other subjects. Two out of the total of five or six subjects must be offered at the Advanced level. There is no restriction on the number of sittings if six subjects are taken, but if only five are offered the two Advanced subjects and one other not related to them must be taken at one and the same sitting.

[1] This regulation has now been relaxed in certain clearly defined cases.

On the other hand, the method of awarding State Scholarships varies considerably between the different Boards, and there is as yet no sign of uniform conditions being agreed upon.

Geography in the General Certificate of Education

3·1. The Geography syllabuses issued by the examining boards for the General Certificate examinations must, in view of the many uncertainties, be regarded as provisional. In general, the syllabuses for the Ordinary level do not depart in any important particular from those for the School Certificate, though some Boards have indicated that they will set an alternative Ordinary paper, with questions suited to the more mature outlook of pupils who do not take their Ordinary papers until the end of their Sixth Form course. The syllabuses for the Advanced and Scholarship levels are, again, very similar to those for the former Principal H.S.C. and Scholarship examinations. These differ considerably from one Examining Board to another, especially as regards the principles governing the choice of special regions.

3·2. While recognising the difficulties involved in the period of transition, this Committee believes that the situation should be approached boldly and used as an opportunity for revising existing concepts as to what should be tested and by what methods. The practical nature of the subject and its dependence on first-hand work which can be performed in the home region make it clearly desirable that pupils should have a direct opportunity of showing the knowledge and powers of observation and judgment which they will thus have acquired.[1]. Before considering the content of the syllabus, therefore, we shall deal briefly with the possible number and length of papers, with the practicability and desirability of practical examinations, and with means of testing work in Local Geography.

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[1] See also Chapter VII.

3·3·1. It is now generally agreed that at the Ordinary standard, taken by pupils of about 16, a single paper lasting for three hours is too long, and yet does not allow a sufficient number of questions to be answered to cover the syllabus satisfactorily. There is a good deal of support for the view that no paper at this level should exceed 2 hours, and that the case would be met by setting two 2-hour papers. At the moment, however, most of the Boards seem to be retaining the form of their School Certificate examinations, i.e., one paper of 2½ or 3 hours; though Durham set a written paper of 2½ hours plus a practical examination of 2 hours. This is a welcome experiment and probably a step in the right direction, though it remains to be seen whether the demands of such an examination can be met on the present allowance of class time for Geography, and whether the questions set in the second paper will be purely mechanical or will really test knowledge of principles. Unless this latter end is achieved it may well be that the advantages gained from a practical course will be best seen in the superior ability of pupils who have followed such a course to understand and apply geographical principles in their written answers.

3·3·2. The most difficult work to test is that on Local Geography. It is, however, the opinion of this Committee that there should be at least one question on Local Geography at both the Ordinary and the Advanced level in the General Certificate of Education examination. The methods by which the examining of Local Studies can be carried out have already been fully discussed in Chapter VIII, §3·2.

3·4. At the Advanced level it is widely held that pupils should be sufficiently mature to cope successfully with papers of 3 hours' duration. There is, it is true, strong support for the view that even at this stage papers should not exceed 2½ hours, but the majority of this Committee favours the view that anything less than 3 hours may prevent a good pupil from doing himself full justice. Whether or not a specific practical examination is desirable at the Ordinary level, there can be little doubt that it should form part of the Advanced examination. Pupils who have specialised may be expected to have acquired the necessary skills for this purpose, though, apart from map interpretation, there should be sufficient choice of questions to allow for variations in the type of work done. In so wide a subject as Geography there is bound to be some degree of specialisation, or, at any rate, of emphasis on certain aspects, e.g., Historical or Economic Geography, and it has been suggested that there should be an extra written paper, chosen from several, on one of these specialised aspects. This Committee feels, however, that while this may be desirable for competitors for Open Scholarships, the purpose can be better served in the General Certificate examination, at both Advanced and Scholarship level, by giving a wide choice of questions. At the Advanced level, then, the desiderata would appear to be two written papers of 3 hours each, together with a practical examination.

3·5·1. The varying practices of the different Boards in the past with regard to the basis for their awards of State Scholarships have led to some confusion as to the part to be played by the papers set at the Scholarship level. The Secondary School Examinations Council proposed that a pupil who failed to obtain a sufficiently high mark to pass in a Scholarship subject might still be granted a pass in that subject at the Advanced level. This appears to imply that a pupil entering for a State Scholarship would take a given subject—say, Geography—at *either* Advanced *or* Scholarship level, but not at both. It has already been laid down by some Boards, however, that their State Scholarships will be awarded on the success of candidates in three subjects taken at Advanced level, two *of these* also being taken at Scholarship level. Such Boards, in general, set a single Scholarship paper of three hours, consisting of more difficult questions on the Advanced syllabus.

3·5·2. It is the opinion of some teachers, however, that this practice will encourage many candidates who are not of Scholarship calibre to " have a shot at " the Scholarship paper in addition to the Advanced: and, indeed, " encouragement " is hardly a strong enough term for the pressure that is put upon candidates, by some Headmasters, to adopt this course. Many Geography teachers would therefore prefer to see Scholarship papers forming a complete examination in the subject, at a higher level than the Advanced. In Geography this would consist of two written papers and a practical examination. The adoption of such a scheme would enable the more obvious interpretation of the Secondary School Examination Council's proposal to be put into practice, and would reduce the number of candidates for State Scholarships and thus enable the examination to be held later in the summer term than at present.

3·5·3. On the other hand there is a body of opinion amongst teachers, many of whom are experienced examiners, who point out that, in a given subject, the calibre of potential State Scholars can usually be detected from their performance in the Advanced papers, and that one additional paper at Scholarship level is all that is necessary to enable a selection to be made. It is apparent, moreover, that the multiplication of syllabuses and examiners, and the additional problems of standardisation involved in setting a separate set of papers—two written and a practical—at Scholarship level would further complicate the work of the Examining Boards. It is to be hoped, however, that, as a result of experience gained from their various methods of determining those who are to be State Scholars, the different Boards will, by consultation among themselves, arrive at a degree of uniformity which will be fairer to the candidates than is the present diversity in the principles of selection.

The Syllabus

4·1. The syllabuses for the General Certificate of Education issued by the various Examining Boards show that, while emphasis differs and there is considerable variation in detail and in the grouping of the different parts of the subject, there is at least a nucleus of agreement as to the content of the syllabus in Geography.

Ordinary Level

4·2. All the Boards require ability to interpret simple topographical maps, some of them, but not all, making it clear that Ordnance Survey maps are included. The study of the British Isles is also, and rightly, common ground, while land forms, weather and climatic elements and types, natural vegetation, and the interrelations between these factors and human development find a place in all the syllabuses. Even in these matters, however, the syllabuses of some Boards are much less precise than those of others, and will leave the less experienced teacher in some doubt as to what aspects of the subject it is really intended to examine.

4·3. Of those Boards which go into detail some include, under the heading of World Geography (or something similar), such items as " latitude and longitude," " soils," " salinity of the sea," " tides," " form of the ocean bed." The Committee feels that all of these, in varying degree, need qualification, since a great deal of Geography is quite intelligible without reference to any of them. It is not for one moment suggested that the meanings of these terms should not be known, nor even that in some schools conditions might not favour a certain amount of detailed study of one or other of them. It is felt, however, that to put them without qualification into an examination syllabus will inevitably cause an undue amount of time to be spent in studying them at the expense of more fundamental geographical concepts. On these particular points the Committee's views are as follows:

Latitude and longitude: The meaning should be known, but questions should not be set on the methods of determining them.

Soils: Study should be limited to well-defined soil types of significant importance in those regions which are studied in detail, particularly the local region. Pupils should also be aware of the dangers of, and remedies for, soil erosion in those regions.

Tides: The effects (not the causes) in those coastal areas where tides (or their absence) are important (e.g., in relation to the position of ports of world-wide importance) may reasonably be expected to be known.

Salinity of the sea: This could well be omitted.

Form of ocean bed: Broad continental shelves are important. Otherwise this could be omitted.

4·4. There is much variation in the method of determining the regions, other than the British Isles, of which knowledge is required. There appear to be three main principles. Some Boards leave the selection in the hands of the teacher, setting a fairly large number of questions with a wide choice. Others specify a particular region, e.g., North America, for detailed study, a different region being set each year. The third principle is exemplified in the syllabus of one Board which requires " the following regions in decreasing detail: (a) The British Isles; (b) Europe and its bordering areas; (c) the rest of the World." It is of course clear that some method must be adopted to restrict the portion of the earth's surface which must be studied in detail. In so far as it leaves the choice in the hands of the teacher and encourages him to cover a broad study of several continental or sub-continental areas for purposes of comparison the first method is undoubtedly the best, though it is open to abuse. The second method takes out of the teacher's hands the decision as to the culmination of his five-year course of study, and tends to encourage cramming. The third method is liable to stereotype the whole Geography course, and tends to disguise the changing relative importance to us of different parts of the world.

4·5. The Committee is in agreement with the common practice of setting a compulsory map-reading question. The syllabuses do not in all cases make it clear, however, that this is the intention. It should also be stated that pupils will be expected to understand and make use of the National Grid, not as an end in itself, but to facilitate finding and stating positions.

Advanced Level

4·6. With regard to Physical Geography there is a close resemblance between the requirements of different Boards, but much variation, again, in the detail in which they are stated. Whereas in some syllabuses this branch, including the surface features of the earth, oceanography, climate and natural vegetation, is associated with general human geography, in others it is dealt with in a separate paper. Whilst on the face of it the latter course may seem undesirable, it is the nature of the actual questions which really matters. It is, in any case, quite usual for purely physical questions to be set. The study of weather reports is mentioned in some syllabuses, but the practice of asking questions on theoretical meteorology has generally been abandoned.

4·7. The interpretation of Ordnance Survey maps is invariably associated with Physical Geography, but in some syllabuses no reference is made to the scales of these maps. The Committee believes that the 1-inch, including the Land Utilisation Survey, and the 2½-inch scales are the most suitable for general topographic study, but would not rule out the setting of questions on the 6-inch or the 1-inch maps for particular purposes. In practice, the ½-inch is most commonly set.

4·8. The emphasis placed on map projections shows much variation. It seems reasonable to expect the projections commonly used in atlases to be recognised and their properties understood. On the other hand, their construction demands a knowledge of mathematics which a geography student does not necessarily possess, and the Committee is therefore in agreement with those Boards which do not require the construction of map nets. This applies, in fact, to the majority, and in one case the subject appears only at Scholarship level.

4·9. It is in Regional Geography, as in the Ordinary level syllabuses, that most variation is evident; there are almost as many ways of specifying the regions to be studied as there are Boards. The least satisfactory feature is the general omission of the British Isles as a compulsory region; the home country is in fact not included at all in some of the schemes, and forms an optional part of an optional region in others. In the Committee's opinion, the study of these islands, including the first-hand study of the home region from the geographical point of view, is so fundamental to the proper understanding of geographical principles as they are applied to other parts of the world that its inclusion in the syllabus should be beyond question.

4·10. The wide variation in the methods of selecting regions other than the British Isles is probably no disadvantage; but there should be more uniformity in the size of regions. They should be of continental or subcontinental dimensions, but not so large as to prevent the study in detail of some important smaller areas with well-defined characteristics. There should also be some arrangement by which teachers are enabled to select different combinations of regions for study. An interesting suggestion, which is closely approached in one syllabus, is that two regions should be chosen, one to be studied in greater detail than the other. This would encourage the serious study of a region while avoiding the extreme specialisation which exclusive concentration on this one region would involve.

Scholarship Level

4·11. Conditions differ so much from one Examining Board to another that comment is difficult. In some cases there is an extra syllabus for Scholarship papers; in others more difficult questions are set on the Advanced syllabus. These may form an additional paper or be interspersed with other questions on one or more of the Advanced papers. The essential thing is that wider reading and a more mature outlook are necessary to answer these questions satisfactorily. Whether the Scholarship examination is suitable or not can be judged only by studying the actual questions set.

5. In conclusion it may be said that, generally speaking, the opportunity afforded by the institution of the General Certificate examination to work out a new, practical and stimulating approach to the examining of Geography has not been seized. We should like to see a far more serious effort to get to grips with the problem of examining work done in the home region, and the re-orientation of outlook of Examining Boards away from the academic and mechanical approach inherent in most of the syllabuses. One consoling fact is that some Boards at least are willing to set examinations on approved syllabuses drawn up by individual schools, a challenge which teachers would do well to consider seriously.

APPENDIX II

GEOGRAPHY IN AFTER-SCHOOL LIFE[1]

1. Some knowledge of Geography is required from candidates in many of the qualifying examinations held by the professional associations, but, as the possession of almost any kind of School Certificate exempted its holder from the professional preliminary tests of the associations of secretaries, accountants, and banking officials, there has so far been no guarantee that the fully-fledged professional man would have more than a slight acquaintance with the principles of Geography and their application to the work in which he is engaged. Judged by the syllabuses of these qualifying examinations, the majority of the professional associations regard Geography as being an essential element of school work, but few of them include Geography among the subjects which candidates may offer at subsequent examinations. It should be obvious, however, that many commercial posts require a detailed knowledge either of the industrial and commercial development of some particular area or of the manufacturing and marketing of some specific commodity. In any case, a training in Geography offers a valuable basis for the successful analysis of a given economic region and for its commercial exploitation. In the higher branches of secretarial practice, both commercial and political, a knowledge of economic and political Geography should be of the greatest value. Nevertheless, hitherto, the associations concerned have refused to include Geography among the professional subjects.

2. Unfortunately it is not generally recognised that a knowledge of Geography is a necessary preliminary to the solution of many of the urgent problems which affect political and economic development throughout the world. At every stage of development there is a very definite need for the services of skilled geographers, experts who are able to survey the natural resources of a country and thereby to discover to what purposes each region is best suited, so that the maximum production may be maintained. In certain countries steps have been taken to carry out investigations preliminary to the establishment of reserves of land rich in timber and oil; and, although it is still unfortunately true that in many parts of the world exploitation continues without consideration of the necessity of maintaining future supplies, there appears to be a growing consciousness of the need to think and plan ahead.

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[1] See memorandum on *Careers for Geographers*. Geog. Journ. Vol. CXV, p. 93.

3. In addition to the practical application of geographical training to the everyday problems of economic and social development, there is a field of pure research, exploration, and survey which calls for special qualities of physical endurance, meticulous accuracy of observation, and habits of mind which enable an individual to select and organise the data on which his judgments are based. An excellent example of the value of technical skill supported by a background of geographical knowledge is found in the work of the Ordnance Survey of Great Britain and the official survey departments of the colonies and protectorates. The reputation for accurate work enjoyed by these institutions is such that, in a large number of cases of boundary limitation, the technical survey of the frontier to be established is carried out in collaboration with British official survey officers.

4. In the past, political frontiers have often been defined by politicians possessing little knowledge of, or interest in, the geographical conditions of the areas through which the boundaries they have fixed may pass. In many cases the results have been extremely unfortunate, and the political condition of Europe in the period which preceded the Second World War was to some extent the result of faulty frontier making. It is certain that many of the worst frontier problems could have been avoided if the advice of trained geographers had been followed.

5. In colonial development, the designing of route-nets in conformity with physical and economic conditions appears to be work in which trained geographers should be asked to collaborate with the government engineers *before* any great engineering projects affecting the economic and social life of newly developed territory are attempted. Vacancies often exist in the Colonial Survey Service for which, in addition to the necessary qualifications in Surveying, a degree in Geography is recognised as a very suitable preparation. Again, the introduction of photographic mapping from aeroplanes seems to offer a suitable opportunity for the appointment of official geographers to the government departments responsible for planning the future development of such areas as Central and East Africa.

6. But it is in the domain of Human Geography that the services of geographical experts are especially needed in Colonial affairs, and it is significant that a number of anthropo-geographers have been appointed to the Colonial Administrative Services to carry out research and planning work on economic and social development and on problems of Physical Geography related to these. The African dependencies should offer a wide field for the services of trained geographers, for here it is impossible to separate questions of economic development from the human and political problems which arise from the entry of alien pioneers into communities, formerly stable, which are still strongholds of native culture. The most pressing problem in Africa is not the extent to which capital can find profitable employment in the extraction of mineral ores or in the extension of tropical plantations under white overseers, but the future relationship between the white and the coloured races: and we can claim that, in the task of co-ordinating the conflicting interests concerned,

the trained geographer should be employed, at least in an advisory capacity.

7. Few countries, in fact, appear to recognise the existence of the trained geographer as a factor in their economic life: but it is encouraging to note that in Pennsylvania there is a State Council of Geographers, while in many of the cities of the United States the Geography clubs are allowed to take an active part in advancing schemes of industrial and commercial development. The public museum of Milwaukee is primarily arranged for the study of Geography, and meetings are held during the week and twice on Sundays. In what British town would it be possible to attract an audience of 2,500 people to a Geography meeting *twice in one day*!

8. In the United States National Government Services there are numerous openings for professional geographers. There is, for example, a Geographical Section of the Bureau of Foreign and Domestic Commerce, which supplies technical information to corporations concerned with construction and development, to manufacturers and to export houses. Again, in the Bureau of Agricultural Economics, posts are held by geographers who possess collateral qualifications in Economics, Statistics, Soil Science, and Forestry. In the Marketing Divisions and in the American Geological Survey, a training in Economic Geography is almost essential. In the United States, also, public corporations and private companies make much greater use of trained geographers than do similar organisations in this country. The Social Science Research Council and such bodies as the Rockefeller Institution employ geographers to carry out investigations and prepare reports for various municipal authorities in the interests of urban development, while the Chambers of Commerce, Banks, Brokerage, and Investment Houses require surveys of productive capacity and land values, advisory work on investment, and research in connection with special commercial, industrial, and engineering projects. In addition, professional geographers are employed by travel organisations and political parties, and many of them occupy responsible positions in the National Parks or are engaged in journalism. The demand for geographical services throughout the United States is increasing.

9. Though British interests are at least as world-wide as those of the United States, Geography is *not* a compulsory subject in the Home Civil Service, and, though its importance is recognised in the competitions for the Government Offices concerned with overseas affairs, few of those who enter the select portals of the Foreign and Colonial Offices can be regarded as expert geographers. In fact, the Foreign Office examination, by requiring three " compulsory options " (Modern History and two Modern Languages), tends to exclude the ordinary Honours Geography candidate. It must be acknowledged, however, that the Hydrographic Department of the Admiralty employs a number of cartographers who are required to possess a knowledge of Physical and Mathematical Geography and Surveying.

10. In the British Isles the professional geographer is almost unknown, though there are a number of consulting economists who possess academic qualifications in Geography. There are also a few technical appointments in connection with the production and publication of maps; but in the majority of posts held by geographers, as business secretaries, freight dispatch clerks, buyers and commercial agents in foreign countries, it is difficult to estimate to what extent the possession of special qualifications in Geography was considered when the appointments were made; although in a number of cases in which the applicants had a specialised training in Geography (e.g., where they held an honours degree) it is probable that this was a material element in their success.

11. Geography was a special subject for candidates for administrative appointments on certain English railways, but few of the various traffic companies and travel associations demand a thorough knowledge of the subject from their employees. It is to be hoped that, as its influence extends, the Travel Association of Great Britain will employ trained geographers as hosts, guide-lecturers, and technical advisers. It is noteworthy that the Medical Research Council has recognised that geographers may be usefully employed in connection with the Public Health and Social Services; and a geographical background has been found useful even in psychiatric research. A number of qualified geographers are also employed in connection with agricultural development both at home and overseas.

12. The geographer has an obvious part to play in town and country planning and in connection with the development of National Parks, and to a small extent this is recognised by the County Planning Committees. It is therefore a matter for regret that Geography is not yet a compulsory subject for appointments under any of the bodies concerned with this work: although some geography graduates are now taking diplomas in Town Planning.

13. In France, Meteorological work is a department of the National Geographical Service. British Meteorological Office appointments, on the other hand, are open to persons who hold an honours degree in Physics, although it is to be hoped that a training in Geography may eventually be considered as of equal importance for this service, at any rate in the Forecasting and Climatological departments. At the present time qualified geographers may compete for posts in the Colonial Meteorological Service.

APPENDIX III

TRAINING OF TEACHERS

1. GEOGRAPHY is probably unique in that some of its most efficient teachers possess no academic qualifications in the subject. In many cases this is due to the fact that these teachers took their university courses before degrees in Geography were instituted: and their number is steadily diminishing.

2. There is no doubt that the long delay in the recognition of Geography as a principal subject for university degrees has had an adverse influence upon the status of Geography teaching—an influence which is responsible for the fact that teachers of Geography were, until recently, seldom chosen for promotion to headships: though prospects of advancement for them are now improving. Whilst it is desirable that responsible teachers of Geography should possess a university degree or an academic diploma in their subject, it should also be recognised that many graduates in other subjects, both arts and sciences, have made a thorough post-graduate study of Geography without being able to follow it up by taking a second degree or other special qualification.

3. The essentials of the training of the teacher of Geography are that he should acquire the technique both of teaching in general, and of Geography teaching in particular. He should have a broad view of Geography and a good knowledge of its subject-matter. In addition there should be enthusiasm not merely for the subject but also, and particularly, for its teaching.

4. Teaching is peculiar in that it is a profession in the preparation for which much time is given to the acquisition of knowledge, but little, in proportion, to training in actual professional practice. Indeed it is possible, even at the present time, for an individual to start teaching without any professional training.

5. The present system of education for prospective secondary school teachers, which requires a normal three-year university degree course succeeded by a fourth year of professional training fails, sometimes, to produce efficient teachers because it does not always obtain those personal qualities which are so essential to good teaching. The difficulty has been aggravated by the system in which the Ministry of Education offered grants to pupils still at school who signified their intention of becoming teachers and were prepared to sign a contract to that effect. Clearly, students of school age are far less capable of deciding whether they have a real inclination towards teaching than those aged 21 or 22 who have completed their degree course: and the ministerial decision to abolish the four-year grant system is therefore to be welcomed. But a greater effort must be made to encourage the recruitment of the graduate student with a relatively mature sense of vocation. Even under the present system the four-year student candidate for a grammar school teaching post is still often chosen more for academic attainment than for ability to teach.

6. Another difficulty arises from the fact that the fourth year need only contain sixty days' "practice"—practice which is not all actual teaching but which includes observation work and other duties. Yet at the end of this year the student is deemed to be a qualified teacher and, as a rule, has then to work out his own salvation without any further assistance. He takes his place in a school and in far too many cases is given the heart-breaking task of teaching the so-called poorer forms, since his inexperienced hand cannot be risked with the better, particularly with the examination, forms—a severe test, indeed, for the enthusiastic young teacher! All this goes to show that the system is far from ideal, but, since it exists and there appears to be little prospect of any change, it is essential that it should be so organised as to be of the greatest possible value to the intending teacher.

7. Throughout the country there are many universities and colleges which cater for the post-graduate year of professional training. At these colleges some special training is usually provided for teachers in the usual subjects of the secondary school curriculum, such as Geography, Modern Languages, Mathematics, and so on. Is it possible for a single college, particularly if it is a small one, efficiently to prepare teachers for all subjects ? Under present circumstances, even where special departments do exist, little effort appears to be made to produce efficient subject teachers. Might not better results be obtained if all but the larger colleges specialised in training teachers in one or two subjects only ?

8. This suggestion does not imply that there should be any interference with the general preparation of a teacher, but merely that, under such a system, it would be possible to provide greater facilities for instruction in the special technique necessary for the teaching of the particular subject.

9. The preliminary college training of the Geography teacher should cover the aims and objects of school Geography and should be directed to the development of the Geographical outlook. Syllabuses and methods should be discussed on some such plan as that adopted in Chapters III, IV and V. The help of practising teachers should be called in. Many teachers excel in some particular branch of teaching: one man, for instance, may be an expert in the use of the blackboard, another may be excellent in his use of models for the illustration of his work. Such teachers should be invited to lecture on their own particular methods, and arrangements should be made for demonstrations, to be followed by discussions in which the special methods could be still further expounded to the students.

10. As regards actual teaching practice and observation, there are, as has been mentioned above, colleges where sixty days are all that is considered necessary for this part of the training course. Insufficient as such a period is at best, it only too often means merely sixty days' attendance at a school, with little or no experience in actual teaching or handling a class. If such a scanty time allowance is all that can be made for the practical side of the teacher's training, it is important that it should be utilised to the best possible advantage.

11. Again, it is difficult in the limited time available to provide the wide experience that is so essential. But time should certainly be found for some teaching in Primary Schools and in Secondary Modern Schools as well as in Grammar Schools.

12. In the course of his training the student should have the opportunity of seeing good teaching, of gaining experience in the special technique appropriate to his subject, and of handling in class the ordinary teaching materials such as maps, pictures, and the like. But it is very doubtful whether observation work by itself is of much value to the beginner. He has had little experience, and it is probable that he will be quite unable to appreciate many of the methods and much of the skill of the good teacher. He will be unable to note the manner in which difficulties are met and overcome. For observation work to be of the greatest worth it is necessary that discussions and explanations follow a lesson.

13. Such discussions and, indeed, all that is most valuable in the "teaching practice" period, depend on the goodwill of the teacher concerned, for his work is the teaching of Geography in his school, not the training of Geography teachers for other schools. As a rule, the teacher is only too willing to help the student in training in every possible way, but, at the same time, he has to ask himself the question: "What will least interfere with the general routine ?" or, again, unfortunately, "What will do the least harm to the pupils ?" Some training colleges give small grants to the long-suffering teachers who have students under their care. This kind of recognition of the very valuable work which practising teachers give voluntarily should help to gain greater co-operation between schools and training colleges.

14. Thus, through no fault of the teacher, it too often happens that the student does not get as much benefit as he might from his period of training. Sometimes the latter is given charge of the Geography of one or two forms, and it is obvious which forms will be allotted to him in that case. Such a procedure is not fair to the student and, in many cases, not fair to the forms concerned. Experience gained through teaching in one or two forms only, and those probably of poor calibre, is of limited value. The student should have an opportunity of widening his experience by teaching in all parts of the school, in the " good " as well as in the " poor " forms, in the upper as well as in the lower. Quite apart from any added advantage to himself, such a practice minimises the harm that an incompetent student can do, since it is spread over a wide area. While it is unwise for a student to have charge of the Geography of any one class for a whole term or year, nevertheless the varied practice that is essential should not be obtained by isolated disjointed lessons. Every student should be given a complete and separate piece of work to cover with a particular class, lasting five or six weeks. Such a continuous piece of work allows the student more scope; and the results of a written examination on the work done is often more instructive to him than much advice ! It is often found that students gain much by teaching a subject in which they have not specialised. They tend to be less academic and to realise the difficulties of the pupils more readily.

15. But, whatever arrangements are made, the student, unless he is a born teacher, will do little more in the time at his disposal than become acquainted with the elements of his craft. To convert the average raw novice into the competent teacher, at least three years' hard teaching experience is necessary.

16. For this reason, a second period of training, taken after a few years' experience in actual teaching, would appear to be of the utmost value. The young teacher has then learnt enough to appreciate the nature and value of good teaching. He can gain much from observation and discussion, since he knows what to look for and what is important. The Public and Preparatory Schools Group of the Geographical Association recognised the value of such a " refresher " course by arranging for one to be held during the Easter vacation in 1933. This course was provided " in order to help Geography masters to keep up with the rapid developments in their subject at the present time, to suggest a right outlook, and to provide an opportunity for exchange of ideas on methods and technique."

17. The course included such items as " The Teaching of Regional Geography," " The Arrangement of the Geography Syllabus," " The Geography Room," with, in some cases, demonstrations and discussions.

18. Such a course is no doubt " refreshing " in the literal sense of the term: but, for obvious reasons, it makes no provision either for observation of, or for practice in, actual class teaching. But if teachers could bring themselves to admit a colleague into their classrooms in order to listen to a lesson, and if an occasional interchange of classes could be arranged, these difficulties could be overcome without going outside the walls of a man's own school. Such a practice would doubtless be to the mutual advantage of the experienced and the inexperienced teacher. It does already exist in a few schools. Is it too much to hope that it may become of general application ?

19. Every training centre should be equipped with all the necessary apparatus for Geography teaching. Unfortunately, at the present time, very few schools are adequately equipped. It is often necessary for the teacher to use makeshift apparatus devised, it may be, as well as constructed, by himself. In any case the properly trained Geography teacher should be able to construct models and other simple apparatus. Indeed, it would be very useful to intending Geography teachers if a course in General Handwork were included as part of their professional training.

20. Residence abroad is rightly recognised to be valuable, if not essential, to the teacher of Modern Languages, and encouragement is given, and in many cases facilities are provided, to this end. Residence abroad, however, and especially travel, are as important to the teacher of Geography as to the Modern Language teacher, though they are less easy of accomplishment, especially if they are to be sufficiently extensive to permit of that systematic regional study which is their highest aim. It is difficult to see how such travel can be effected during the training period. The cost is too great to allow of its being undertaken by the majority of intending teachers, or even, as a rule, by acting teachers. It is indeed a pity that our University Geography Departments are unable to imitate certain American colleges where one complete term in the three-year honours course must be spent in supervised travel and field work. The task of the training college tutor would be immensely lighter if such a course could precede the training year. The universities, however, are doing great service to the teaching profession now that they are introducing more pictorial illustration and pure description into their work. Moreover, some colleges are having picture discussions in order that the more advanced studies shall take on the reality of actual study-visits. For those who can afford to extend their geographical knowledge and outlook by foreign travel, facilities are provided by the Le Play Society Students' Group. As a rule, a teacher can travel abroad only during the holidays; although it is occasionally possible to obtain leave for a sabbatical year of systematic travel or foreign residence, which is, of course, invaluable to the Geography teacher. On the exchange system, again, a teacher may obtain a year's experience of life in one of the British Dominions, or in the U.S.A.

21. That Refresher Courses and Foreign Travel are extremely valuable to the Geography teacher would seem sufficiently obvious: and yet the fact appears to be hardly recognised except by the teachers themselves. Much more assistance and encouragement are required on the part of Governing Bodies, Education Authorities, and the Ministry of Education itself, if this particular side of the Geography teacher's training is to be made as generally effective as it should be.

22. The Ministry of Education have urged that the training college year shall be much more practical and less theoretical. They have urged, too, that after from three to five years' experience teachers shall be given "study-leave," with pay, in order to go back for a term to a training college to study the "theory" of teaching their subject. This, of course, would mean that the training colleges would need to do a great deal more research into the problems of teaching Geography, so that the "theory" course would be definitely an advanced course. It would, however, promote a very salutary co-operation between teachers and training colleges.

23. It has been pointed out that many successful teachers of Geography have had no university training in the subject, and it is not to be supposed that this supply of competent non-specialists is altogether finished. In some instances a non-specialist is brought in to teach poorer or lower forms; such might well be the case in a two-stream school with an active advanced course, where there is more geographical work to be done than can be accomplished by one specialist, but not enough for two. When this state of affairs, however, results in a general-subjects master taking over such a task half-heartedly, and becoming an unskilful hammerer of textbook facts into immature minds, the result is lamentable.

24. There are, however, schools in which a non-specialist has become convinced, after some years of teaching, that Geography has greater educational value than he realised at first. Such a man may be an experienced camper or hiker, or a keen naturalist, meteorologist or craftsman who can on occasion see farther than the trained geographer, and can bring the special methods developed by his interests into the service of education through Geography. It is our view that the enthusiasm of teachers of this type should be encouraged by the Education Departments of the Universities. The best way of doing this would be by the institution of a Diploma in the Teaching of Geography, to be eligible for which candidates should have taught Geography in a Secondary School for at least five years. The award should be the result of dissertation and interview rather than of an examination conducted by means of written papers: its scope should not compete with that of a degree in Geography.

25. No discussion, however brief, of the training of Geography teachers could afford to ignore the invaluable work in this connexion performed by the Geographical Association. All intending teachers would do well to join the Association at the earliest opportunity, and to take part in the valuable activities of one of its many branches. Details will be found in the next Appendix.

APPENDIX IV

SOCIETIES PROMOTING THE STUDY OF GEOGRAPHY

1. The study of Geography owes much to the work of the Royal Geographical Society, to the Scottish Royal Geographical Society, to the Geographical Association, to a number of local geographical societies, and to those associations, such as the Regional Association, the Le Play Society, the Royal Meteorological Society, and the Anthropological Institute, which have fostered investigations into special aspects of Geography. Of these, the Geographical Association is the one most directly concerned with the problems of the Geography teacher, its personnel being composed mainly of those who are or who have been engaged in teaching the subject. Within its ranks, representatives of every grade of educational activity meet, and it is not unusual to find teachers in primary, secondary, and public schools discussing points of educational and geographical interest with distinguished university professors on terms of perfect equality. As a direct consequence, new ideas spread very rapidly through the whole body of Geography teachers and, as each new development is subjected to keen and well-informed criticism, the effect is to create an ever-fresh interest in the problems of the classroom. The work of the Geographical Association is carried on by a large number of branches with centres in many of the chief towns.

2. Where there is nothing of the kind in the neighbourhood of the school, it is advisable for the Geography teacher to get into touch with other people who are interested in the subject, with the object of forming a local geographical society or branch of the Geographical Association. Membership of this should not be confined to teachers of Geography, and the subjects of discussion should be such as will create general interest on the part of those who are not engaged in teaching. The Manchester Branch of the Geographical Association, founded by the late Mr. H. W. Ogden, often working in conjunction with the Manchester Geographical Society, has been conspicuously successful in bringing together people of diverse tastes who have a common interest in Geography. The programme of the Branch for the session 1933-1934 included the following items:

October 20*th*. W. O. Lester Smith, Esq., M.A., Director of Education, on " Geography and Citizenship."

October 21*st*. Visit to the Airport of Manchester.

November 17*th*. Jonkheer Elias Van Stabrouck, of the Vereeniging Nederland in den Vreemde, on " Holland and Her Colonies " (illustrated by films).

December 1*st*. Alderman F. J. West, C.B.E., J.P., Lecture with Travel Films.

January 19*th*. Sir Kenneth Stewart on " After Chinese Deer in An-hwei."

January 20*th*. Visit to the Dunlop Rubber Co., Manchester.

February 16*th*. S. A. S. Hozayen, Esq., M.A., on " Cities of the North Arabian East."

March 2*nd*. Joint Meeting with the Historical Association. Professor H. J. Fleure on " The Village and the City."

June 16*th*. Summer Excursion.

3. Those societies which are centred in university towns have the advantage of the advice and assistance of the university departments of Geography, but, in practically every case, the central figure in the organisation of these societies is a teacher of Geography who has managed to get together those who are interested. Teachers who think that their school neighbourhood offers a favourable prospect for the organisation of such a society may obtain advice and assistance from the Assistant Secretary of the Geographical Association, c/o The Park Branch Library, Duke Street, Sheffield, 2.

4. The first step which should be taken is to ascertain whether other persons with geographical interests reside within the neighbourhood of the school. These should be consulted before the society is launched, and it is advisable to keep the local educational authority informed as to the society's progress. Occasionally interest is stimulated by inviting some prominent member of the educational administrative staff to deliver the inaugural lecture, but, in the long run, it will be found that the best way to maintain a living society is to develop some special study of local interest, such as a co-operative survey of the district, in which the pupils of the schools in the locality may share.

5. The use of the Library of the Geographical Association, or of other societies, is an additional advantage of membership. The Geographical Association, too, has a large number of lantern slides at the disposal of its members.

6. Not the least useful to the Geography teacher of the Association's activities are the Conferences which are held in London at the New Year and in the provinces at Easter. Here the teacher can not only listen to lectures on aspects of Geography or of Geography teaching which break new ground, but he can also make the acquaintance of new regions through well organised excursions. He can take part in set discussions on teaching problems and, perhaps the most valuable opportunity of all, he can make contact with other members in those informal talks and arguments which are the life-blood of the conferences and a heartening stimulus to the individual teacher.

APPENDIX V

BIBLIOGRAPHY

Note.—The Classification of Books and Articles is designed for the Teacher and not for the Student. Consequently information regarding the teaching of any particular aspect or branch of Geography, such as "Climate," will be found not under that heading but under "Class Method," "General," "Syllabus," and so on. Again, literature on a particular subject may be found not only under the heading of that subject but also under "General," which includes books containing a variety of topics.

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A. C. Haddon—Natural Conditions and Simple Human Societies. G.T. *9* (1917-18), 244.

A. Jennings—Geography Schemes in Grammar Schools (a Letter). G. *31* (1946), 30.

A. S. Le Mare—Scheme of Geography, Leighton Park School. G.T. *11* (1921-22), 247.

Leyton High School—Advanced Course in School Geography. G.T. *9* (1917-18), 255.

H. J. Mackinder—Geography in Education. G.T. *2* (1903-4), 95.

M. C. March—The Teaching of Geography. G.T. *7* (1913-14), 297.

G. M. Marten—Geography Syllabus in Middle School. G.T. *6* (1911-12), 117.

A. A. Miller—Teaching of Climate (a Letter). G. *18* (1933), 229.

C. E. Moss—Botanical Geography for Schools. G.T. *2* (1903-4), 201.

M. H. Munro—Year's Course in a London Day Continuation School, Based on Local Geography. G.T. *11* (1921-22), 386.

M. Newbigin—The Geographer and Climate. G. *14* (1927-28), 417.

J. E. Nicholson—A Project on Transport. G. *29* (1944), 123.

Norwood Report—Geography in Secondary Schools. G. *28* (1943), 118.

E. J. Orford—What Facts Shall We Teach ? G.T. *9* (1917-18), 212.

W. A. Perkins—Lessons from Indian Climate. G. *18* (1933), 135.

D. Peter—Climatology in Teaching Geography. G. *16* (1931), 224.

P. M. Roxby—A Course in Geography for Schools. G.T. *11* (1921-22), 163.

T. A. Smith—Physical Geography as Essential in School Geography. G.T. *4* (1907-8), 221.

H. J. Snape—On Teaching the Historical Geography of Britain. G.T. *4* (1907-8), 75.

V. C. Spary—Geography Syllabus in William Ellis School. G.T. *11* (1921-22), 163.

L. D. Stamp—Post-Matriculation Geography: New Syllabus of London University. G. *15* (1929-30), 303.

Times Ed. Supplement—A New Syllabus in Outline. G.T. *6* (1911-12), 52.

J. F. Unstead—Regional Geography in Schools. G.T. *2* (1903-4), 251.

E. J. R. Walsh—Talks to Teachers of Country Schools. G.T. *13* (1925-26), 391.

T. C. Warrington—What to Teach and What Omit in School Certificate Courses on British Isles. G. *16* (1931), 224.

E. M. White—A Civics Syllabus (for Continuation Schools). G.T. *10* (1919-20), 65.

PART II. LIST OF BOOKS AND ARTICLES IN JOURNALS OTHER THAN "GEOGRAPHY"

Note.—A number of the books listed may be out of print, but they can usually be consulted in the G.A. or other libraries. Prices of books given are those at the time of first publication. Some old publications have been retained for their historical interest.

Abbreviations of Titles of Journals

A.	Australian Geographer.
A.D.V.	Advancement of Science.
A. of G.	Annals of the Association of American Geographers.
B.Q.M.	Bulletin des Sociétés de Géographie de Quebec et Montreal.
C.H.R.	Canadian Historical Review.

E.	Education.
E.G.	Economic Geography.
E.P.	Enseignement Publique.
G.AN.	Geographische Anzeiger.
G.J.	Geographical Journal.
G.R.	Geographical Review.
G.Ru.	Geographische Rundschau.
G.Z.	Geographische Zeitschrift.
H.	History.
J.E.	Journal of Education.
J.M.G.S.	Journal of Manchester Geographical Society.
J. of G.	Journal of Geography.
J.T.	Journal of the Tyneside Geographical Society.
M.G.	Mathematical Gazette.
N.G.	New Zealand Geographer.
P.G.A.	Proceedings of the Geologists' Association.
P.M.	Petermanns Mitteilungen.
R.C.G.	Revue Canadienne de Géographie.
S.G.M.	Scottish Geographic Magazine.
S.R.	Sociological Review.
S.W.	School World.

Abbreviations of Names of Publishers

C.U.P.	Cambridge University Press.
O.U.P.	Oxford University Press.
U.L.P.	University of London Press.
L.N.U.	League of Nations Union.

Books

A. M. Allen—Survey of Books on Methods of Teaching Geography. J. of G. *32* (1933), 285.

C. G. Beasley—Local Geography: a Guide to Sources. Murby (1924). 1s.

L. B. Cundall—The Geography Library. J.E. *65* (1933), 539.

D. M. Forsaith—A Handbook for Geography Teachers. Methuen (1932). 4s.

F. D. Herbertson—Books of Travel as an Aid to Teaching Geography (with Tests). S.W. *9* (1907), 458.
E. Meynen—Geographisches Taschenbuch, 1950. Reise und Verkehrsverlag. Stuttgart (1950), 15s. 6d.[1]
R. C. G. (Editor)—Bibliographie sur l'enseignement de la Géographie. R.C.G. Jan. (1950).
R. F. Treharne—Bibliography of Historical Atlases and Handmaps for Use in Schools. Bell (1939). 1s.
J. F. Unstead—What to Read on Geography. Leeds Public Libraries (1930). 3d.
H. J. Wood—Select List of Books Relating to Geography of British Empire Overseas. G.A. (1933). 1s.

Class Method

C. D. J. Back—An Experiment in Teaching Geography. A. June (1948).
H. H. Barrows—Problems in Teaching Elementary Geography. J. of G. *30* (1931), 353.
P. Blood—Preparation of Geography Units by Student Teachers. J. of G. *35* (1936), 18.
Bd. of Ed.—Suggestions for Teachers. H.M.S.O. (1905, 1914, 1919, 1937, reprinted 1946). 2s.
E. J. G. Bradford—School Geography: a Critical Survey of Present-day Teaching Methods. Benn (1925). 7s. 6d.
M. E. Branom—The Problem Method of Teaching Geography. J. of G. *19* (1920), 233.
M. E. Branom—The Project Problem Method of Teaching Geography. J. of G. *17* (1918), 333.
Ralph H. Brown—A Method of Teaching Regional Geography. J. of G. *28* (1927), 270.
W. S. Crewson—Teaching a Phase of the Banana Industry of Central America. J. of G. *37* (1938), 164.
G. F. Deasy—College Level Exercises in Climatology. J. of G. *39* (1940), 285.
H. J. E. Dumbrell—Letters to African Teachers. Longmans (1935). 2s.

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[1] Contains useful lists of Books, Yearbooks and Magazines in German.

R. M. Fleming—Round the World in Folk Tales. Batsford (1924). 2s.

Geographical Teaching Methods: Criticisms and Suggestions. S.G.M. *34* (1918), 321.

R. Hartshorne—Modes of Methodological Discussion. A. of G. June (1948).

A. J. Herbertson—Practical Work in Physical Geography. S.W. *2* (1900), 296, 334, 372, 415.

H. Jowitt—Suggested Methods for the African School. Longmans (1934). 6s.

J. J. Loftus—Activity Program as a Means of Vitalizing the Teaching of Geography. J. of G. *34* (1935), 349.

C. A. McMurry—Special Method in Geography. Macmillan (1903). 3s.

C. A. McMurry—Teacher's Manual of Method in Geography. Macmillan (1902). 2s.

J. Martin—Use of Practical Exercises in Teaching Geography. S.W. *14* (1912), 330.

G. J. Miller (Ed.)—Geography: How to Teach It. McKnight (1934). $1.60.

G. Minadeo—Creative Work in Geography. J. of G. March (1950).

R. Minor—Problem Teaching: How to Plan for It. J. of G. *19* (1920), 61.

L. Oleson—A Dramatisation to Vitalize Geography Teaching. J. of G. *33* (1934), 91.

J. A. Ramsay—Use of Place in Teaching Geography. S.G.M. *29* (1913), 429.

A. T. Simmons—Experimental Geography. S.W. *7* (1905), 21, 100, 139.

E. E. Smith—Teaching Geography by Problems. Doubleday Page (1921). $1.50.

L. M. Smith—Devices to Create Interest in Geography. J. of G. *35* (1936), 194.

Flora M. Staple—Teaching Daily Time Adjustment to Earth Rotation. J. of G. *38* (1939).

C. Symonds—A Geography Assignment. J. of G., April (1950).
G. Taylor—The Geographical Laboratory [a Manual of Exercises]. 2nd Ed. (O.U.P. 1942). 7s.
E. L. Wallace—Interest Stimulating Devices: a Miniature World's Fair. J. of G. *30* (1931), 43.
B. C. Wallis—Use of Statistics in Teaching Geography. S.G.M. *28* (1912), 524.

Correlation

T. Booth and W. Ormesher—Correlation of History and Geography in Lower Forms. S.W. *14* (1912), 281.
G. J. Cons and Cath. Fletcher—Actuality in School: An Experiment in Social Education. Methuen (1938). 2s. 6d.
L. Cundall and M. F. Bond—History and Geography in Teaching. H. *29* (1944), 187.
L. Cundall—Geography with History and Social Studies. J.E. *82* (1950), 976.
J. Fairgrieve—Correlation of the Teaching of Geography and Mathematics. M.G. *24* (1940), 187.
C. O. Fitzwater—Common Goals for Rural Education and Geographers. J. of G., Sept. (1950).
A. Geddes—Geography, Sociology and Psychology: Co-ordination of. G.R., October (1948).
J. Hemming—The Teaching of Social Studies in Secondary Schools. Longmans (1949). 6s.
G. G. Mallinson—Elementary Science and Geography Teachers. J. of G., May (1950).
New Educators' Library—Teaching Geography and Economics. Pitman (1921). 2s. 6d.
G. Pickering and J. B. Robinson—Handwork and Geography. Pt. II. The Earth and Its Movements. Pitman (1937). 3s. 6d.
E. S. Price—Experiment in Geography Teaching (including correlation with History and other subjects). Bd. of Ed. (1924). 1s. 6d.

G. M. Wrong—Teaching the History and Geography of the British Empire. C.H.R. *5* (1924), 297.

Examinations and Class Testing

Emily V. Baker—Diagnosing Children's Ability to Use Maps. J. of G. *37* (1938), 227.
M. E. Branom—The Measurement of Achievement in Geography. Macmillan (1925). 5s. 6d.
M. E. Branom—The Objective Measurement of Problem Geography. J. of G. *25* (1926), 52.
F. I. Lancaster—Measuring Results in Geography. J. of G. *30* (1931), 342.
H. P. Smith—Use of Standardised Tests. J. of G. *36* (1937), 93.
C. B. Thurston—School Examinations Surveyed: Geography. J.E. *66* (1934), 623.
M. Uttley—Fourth Grade Geography Test. J. of G. *39* (1940), 269.

General (Aims, Principles, Scope, Position, History, etc.)

E. A. Ackermann—Geographic Training, War-time Research, etc. A. of G. *35* (1945), 121.
G. Aumont—Géographie dans l'enseignement secondaire au Canada Français. R.C.G., January (1950).
W. H. Barker—Geography in Education and Citizenship. U.L.P. (1927). 6s.
W. H. Barker—Geography in the Schools of England and Wales. J. of G. *20* (1921), 302.
H. C. Barnard—Principles and Practice of Geography Teaching. University Tutorial Press. 3rd Ed. 1949.
G. C. Barnes—Place of Social Geography in the High School. J. of G. *33* (1934), 178.
Bd. of Ed. Pamphlet 79—Report of Inquiry into Teaching Geography of British Empire in Certain Types of Schools. H.M.S.O. (1930). 4d.
R. Bitterling—National Politische Erdkunde Unterricht in Japan. G.AN. *22* (1935).

R. Bitterling—Der neue Erdkundelehrplan für die Höheren Schulen in Rumänien. G.AN. *24* (1936).

M. Bouceau—On Teaching Geography. E.P. Oct. (1935), 117.

Isaiah Bowman—Geographical Interpretation. G.R., July (1949).

Isaiah Bowman—Geography in Relation to the Social Sciences—and with R. B. Clark—Geography in the Schools of Europe. Scribners (1934). $2.25.

E. Bown—The Approach to Geography. Christophers (1931). 3s. 6d.

M. E. and F. K. Branom—The Teaching of Geography. Ginn (1921). 7s. 6d.

A. P. Brigham—Geographic Education in America. Ann. Report Smithsonian Institution for 1919 (1921), 487

Brit. Assoc.—Report of Committee. on Geography Teaching. Brit. Assoc. (1923).

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A. Bromsky—Elementary School Geography and World Problems. J. of G. *32* (1933), 316.

L. Brooks—Geography in Education. J.M.G.S. (1947-49).

R. N. Rudmose Brown—The Province of the Geographer. S.G.M. *30* (1914), 467.

R. N. Rudmose Brown, O. J. R. Howarth and J. Macfarlane—The Scope of School Geography. O.U.P. (1922). 4s. 6d.

E. M. Butterworth—The Teaching of Geography in France. Blackie (1922). 2s. 6d.

G. G. Chisholm—Geography as a Means of Education. S.W. *1* (1899), 460.

G. G. Chisholm—Geography in Schools: a Review of B. C. Wallis's " The Teaching of Geography ". S.G.M. *31* (1915), 406.

E. V. Cleef—Training for Geography and Business. J. of G. *47* (1948), 173.

A. Darrock—Teaching Geography. S.G.M. *22* (1906), 484.

Nöelle Davis—Education for Life: a Danish Pioneer. Williams and Norgate (1931). 7s. 6d.

W. M. Davis—The Earth as a Globe. J. of G. *29* (1930), 330.

W. M. Davis—The Progress of Geography in U.S.A. A. of G. *14* (1924), 160.

B. B. Dickinson—Geography as a School Subject. Philip (1896). 6s.

R. E. Dickinson and O. J. R. Howarth—The Making of Geography. O.U.P. (1933). 8s. 6d.

R. E. Dodge—Teaching of Geography in American Schools. S.W. *18* (1916), 136.

C. R. Dryer—A Century of Geographic Education in U.S.A. A. of G. *10* (1920), 3.

C. R. Dryer—Genetic Geography. A. of G. *10* (1920), 3.

H. Eggink—Position of Geography in the High Schools of the Netherlands. J. of G. *36* (1937), 98.

F. Evans (Ed.)—Teaching of Geography and World Community. L.N.U. (1934). 1s.

J. Fairgrieve—Art. on Geography in " The New Teaching " (Ed. J. Adams). Hodder (1918). 7s. 6d.

J. Fairgrieve—Geography in School. U.L.P. (1949 Ed.) 14s.

H. J. Findlay—The Scope of School Geography. S.G.M. *30* (1914), 133.

H. J. Fleure—Art. on " Teaching of Geography " in " The Modern Teacher " (Ed. Bain). Methuen (1921). 10s. 6d.

H. J. Fleure—Trilogy of the Humanities. G.A. (1918) 6d.

O. W. Freeman—Seen from the Education Office. J. of G., October (1949).

D. W. Freshfield—The Place of Geography in Education. Proc.R.G.S. (1886), 608.

G.A.—Geography in Education. Philip (1919). 2s.

G.A.—Lectures on Teaching Geography. Philip (1909). 1s.

M. A. Garfinkel—Modern Tendencies in Teaching of Geography. J. of G. *33* (1934), 187.

O. Garnett—Fundamentals in School Geography. Harrap (1934). 6s. New and revised Edition (1949). 10s. 6d.

A. Geikie—Teaching of Geography: Principles and Methods. Macmillan (1887). 2s.

Geography in Oxford. Oxf. Mag. (May, 1935), 629.

Geog. Panel of L.N.U. Committee—Geography Teaching in Relation to World Citizenship. L.N.U. (1933). 4d.

G. T. Goldie—Geography in Education. S.W. *9* (1907), 266.

C. R. Graham—Aviation: a Challenge to High School Geography Teachers. J. of G. *40* (1941), 289.

J. W. Gregory—The Teaching of Geography. Melbourne: Whitcomb and Tombs (1902). 1s.

R. A. Gregory—Scientific Method in Teaching Geography. S.W. *10* (1908), 341.

W. H. Haas—Teaching of Geography as a Science. J. of G. *30* (1931), 323.

R. Hartshorne—The Nature of Geography. A. of G. *20* (1939), 171.

J. Hemming—The Teaching of Social Studies in Secondary Schools. Longmans (1949). 6s.

A. J. Herbertson—Chapter on Geography in "The Practice of Instruction" (Ed. Adamson). Nat. Soc. Dep. (1907). 4s. 6d.

A. J. Herbertson—Geographical Education. S.G.M. *12* (1896), 414, 522, 576.

F. L. Holtz—Principles and Methods of Teaching Geography. Macmillan Co. (1913). 7s.

E. Huntington—High Schools and Geographic Immaturity. J. of G. *44* (1945), 173.

P. E. James—Developments in the Field of Geography. J. of G. *46* (1947), 221.

Ll. Rodwell Jones—Geography and the University. S.G.M. *42* (1926), 65.

J. S. Keltie—Thirty Years' Progress in Geographical Education. S.W. *16* (1914), 53.

J. S. Keltie and O. J. R. Howarth—The History of Geography. Watts (1913). 1s.

G. C. Kimber—Place of Geography in General Education. J. of G., October (1949).

E. E. Lackey—The Geography of a Country. J. of G. *19* (1920), 313.

L. W. Lyde—The Teaching of Geography. Blackie (1909). 1s.

W. R. McConnell—Objectives of Geography Instruction. J. of G. *24* (1925), 203.

H. J. Mackinder—Geographical Education. S.W. *5* (1903), 423.

H. J. Mackinder—Geography as a Pivotal Subject in Education. G.J. *57* (1921), 376.

P. C. Merner—Für Schulgeographie in Frankreich. G.AN. *20* (1936).

A. D. Merriman—The Aim of Geography Teaching. Gregg Publishing Co. (1939). 1s.

A. H. Meyer—College Geography. J. of G. *45* (1946), 45.

H. Michel—Die Erdkundliche Lehrwanderung. G.Ru *1*, June (1949).

H. R. Mill—An Approach to Geography. G.A. 6d.

H. V. Miller—Training Geographers for Planning. J. of G. *47* (1948), 177.

T. L. Miller—Aspects of Geographical Work at Supplementary Stage. S.G.M. *29* (1913), 354.

G. Minadeo—Creative Work in Geography. J. of G., March (1950)

C. B. Moore and L. A. Wilcox—The Teaching of Geography. Amer. Book Co. (1932). $1.40.

Marion I. Newbigin—The Training of the Geographer: Actual and Ideal. S.G.M. *41* (1925), 27.

S. Passage—The Problem of the Four Essentials in Cultural Geography. P.M. *78* (1932).

R. S. Platt—Determinism in Geography. A. of G., June (1948).

W. W. Reitz—Teaching Resource Conservation thru' Geography. J. of G. *46* (1947), 227.

D. C. Ridgley—Geographic Principles. Houghton Mifflin (1925). $1.90.

P. M. Roxby—Art. on Geography in " Harrow Lectures on Education " (Ed. Coade). C.U.P. (1931). 10s. 6d.

N. V. Scarfe—School Geography. N.G., October (1948).

N. V. Scarfe—Type of Geography Taught in Schools in England. J. of G., September (1949).

Sch. and World Community Series—Teaching of Geography in Relation to World Community. C.U.P. (1933). 1s.

O. Schafer—Raum und Schicksal Rutheniens. G.AN. *16* (1939).

E. B. Shaw—Foreign Trained Geographers. J. of G. *47* (1948), 195.

V. B. Smith—High School Geography and Geographic Thinking. J. of G. *44* (1945), 232.

J. Sölch—Der Geographieunterricht in England. G.Z. *31* (1925), 26.

M. Sorre—L'enseignement de la Géographie. E.P. (1933), 313, and (1934), 24.

W. J. Sutherland—The Teaching of Geography. Chicago: Scott (1909). $1.50.

A. Thralls and E. H. Reeder—Geography in the Elementary School, Rand McNally (1931). $2.40.

R. L. Tuthill—Training Geographers for Transportation. J. of G. *47* (1948), 184.

J. F. Unstead and others—Geography Teaching and World Citizenship. L.N.U. (1934). 4d.

B. Varley—The Increasing Importance of Geography Teaching. J.M.G.S. 1947-49.

H. Vent—Changing Attitudes with Different Methods of Teaching Geography. J. of G., September (1950).

M. Vogel—Die Erdkunde an der Höheren Schulen in Polen. G.AN. *39* (1938), 109.

B. C. Wallis—Place of Geography in Education. S.W. *19* (1917), 123.

B. C. Wallis—Teaching Geography in Secondary Schools. S.W. *13* (1911), 49.

B. C. Wallis—The Teaching of Geography. C.U.P. (1915). 6s.

W. P. Welpton—Teaching Geography. Clive (1923). 3s. 6d.

G. M. Whipple (Ed.)—Teaching of Geography. Nat. Soc. for Study of Educ.: 32nd Yr. Bk. (1933). $4.50.

J. R. Whitaker—Design for High School Geography. J. of G. *43* (1944), 281.

R. A. Whitbeck—Thirty Years of Geography in U.S.A. J. of G. *20* (1921), 121.

L. S. Wilson—Geographic Training. G.R., October (1948).

L. Winchester—Teaching Geography to Children. Methuen (1920). 2s.

S. W. Wooldridge—Geographical Science in Education. G.J. *109* (1947), 198.

E. Young—The Qualifications of the Teacher of Geography. S.W. *10* (1908), 409.

Geography in the Field

H. C. Barnard—Observational Geography and Regional Survey. Le Play Soc. (1935). 1s. 6d.

C. V. Butler and C. A. Simpson—Village Survey Making: an Oxfordshire Experiment. Bd. of Ed. Pamphlet 61. H.M.S.O. (1929). 1s.

E. M. Coulthard—Some Methods of Teaching Local Geography (Maps). J.T. *3* (1938-39), 157.

J. H. Cowham—The School Journey. Westminster Sch. Bk. Depot (1900). 2s. 6d.

P. Dagenais—L'Etude du Milieu: Base de l'enseignement de la Géographie. B.Q.M., Mars-Juin (1944).

K. G. Diesel—Das Land der Deutschen. Bibliographisches Institut, Leipzig.

E. E. Eisen—Field Work in High Schools. J. of G. *37* (1938), 75.

F. Evans, V. F. Searson and G. H. Williams—Local Studies for Schools. Geo. Philip and Son (1949), 5s. 6d.

H. J. Fleure—Some Local Studies of British Antiquity. G.A. (1919). 4d.

G.A. Committee.—Local Studies (1st Ed. 1939; 2nd Ed., rev., 1947; 3rd Ed., rev. and enlarged, 1949). 3s.

H. Hatch—Local Geography. Blackie (1936). 1s.

A. J. Herbertson—Holiday Observations for Teachers of Geography. S.W. *1* (1899), 290.

E. Layton and J. O. White—The School Looks Around (Local Surveys). Longmans (1948). 8s. 6d.

Le Play House—Observation. Le Play House (1925) 6s.

Le Play Soc.—Exploration. Le Play Society. 4d.

G. G. Lewis—Longer School Journeys. Pitman (1920). 2s. 6d.

G. G. Lewis—Typical School Journeys. Pitman (1909). 1s. 9d.

J. Lomas—Excursions and the Teaching of Geography. S.W. *6* (1904), 65.

H. Mann—Nordheim-Westfalen. Ein Heimatkundliches Arbeitsbuch. Schwann, Düsseldorf (1949).

C. A. McMurry—Excursions and Lessons in Home Geography. Macmillan (1905). 5s.

A. E. Parkins—The Teaching of the Geography of a Small Area. J. of G. *19* (1920), 130.

R. F. Peel—Geomorphological Fieldwork with the aid of O.S. Maps. G.J., July-September (1949).

H. Piggott—School Visits and School Journeys. Dent (1912). 1s.

D. C. Ridgley—Possibilities of Field Work in Elementary Geography. J. of. G. *34* (1935), 161.

Margaret Riggs—Geography Field Work in the Small City. J. of G. *37* (1938), 28.

K. W. Robinson—Classifying Land: School Field Work. N.G. (1946), 253.

Sch. Journey Assoc.—Sch. Journey Record (Annual).

C. A. Simpson—Study of Local Geography. Methuen (1934). 3s. 6d.

L. D. Stamp—Land Utilisation Survey as a School and College Exercise. J. of G. *33* (1934), 121.

M. Stowell—A High School Class Surveys Its Town. J. of G. *41* (1942), 328.

G. W. Sturges—The Teaching of Local Geography. Houndsfield School Press (1946).

A. G. Tansley—Practical Plant Ecology. Allen and Unwin (1935). 6s. 6d.

A. F. Wells—Local Survey in Great Britain. Allen and Unwin (1935). 5s.

E. D. Zachari—Field Trip Exercises in the Intermediate Grades. J. of G. *33* (1934), 49.

Geography Rooms

Bd. of Ed. Pamphlet 86—Suggestions for Planning New Buildings for Secondary Schools. H.M.S.O. (1931). 1s. 6d.

L. Brooks—William Ellis Geography Room. S.W. *19* (1917), 272.

L. B. Cundall—The Geography Room. E. *65* (1935), 258.

L. B. Cundall—The Geography Room. J.E. *67* (1935), 454.

J. Fairgrieve—A Room for Teaching Geography. S.W. *13* (1911), 95.

N. V. Scarfe—The School Geography Room. N.G. *1* (1945), 165.

T. Alford Smith—Arrangement and Equipment of a Geographical Laboratory. S.W. *8* (1906), 445.

V. C. Spary—The Modern Geography Room. Philip (1930), 6d.; (1938), 1s.

Mapwork

E. V. Baker—Diagnosing Children's Ability to Use Maps. J. of G. *37* (1938), 227.

A. V. Burgess—Use of Maps in Developing Geographical Personalities. J. of G. *40* (1941), 57.

W. S. Dakin—Use of Wall Maps in Teaching Geography. J. of G. *30* (1931), 394.

F. Debenham—Exercises in Cartography. Blackie (1937). 8s. 6d.

G. Goodall—The Globe and Its Uses. G. Philip & Son (1936). 1s. 6d.

P. E. James—Filling in the Map. J. of G. *29* (1930), 199.

J. of G. (Ed.)—List of Articles on Maps and their Use in Geographic Education, 1922 to 1949. J. of G., October (1950).

R. W. Mikesell—Geographical Activities Involving the Use of Maps. J. of G. *33* (1934), 105.

H. R. Mill—On the Use of Maps in Teaching Geography. S.W. *3* (1901), 71.

G. Pickering and J. B. Robinson—Handwork and Geography. Pt. I. Mapwork. Pitman (1917). 3s.

C. W. Saale—Instruction in the Use of Maps Needs to be Increased. J. of G., November (1949).

E. R. Wethey—Sketch Maps in Geography. S.W. *17* (1915), 361.

Material Aids

T. F. Barton—Inexpensive Weather Station. J. of G. *40* (1941), 226.

C. Beale—Look & See. Edinburgh Ho. Press (1949). 3s. 6d.

O. Bell—Visual Education (c) Documentary Films. S.R. *1* (1946).

Bd. of Ed. Pamphlet 115—Optical Aids. H.M.S.O. (1938). 1s. 6d.

Brit. Film Institute—Sight and Sound: a Review of Modern Aids. (Quarterly.)

Central Council for Sch. Broadcasting—The Changing World: Programme of Broadcast Talks. B.B.C. (current).

Cen. Council for Sch. Broadcasting—Inquiry Pamphlet. 2. Evidence regarding Broadcast Geography Lessons. B.B.C. (1931).

Commission on Educational and Cultural Films—The Film in National Life. Allen & Unwin (1932). 1s.
F. A. Croppen—Experimental Evaluation of Ability of Children to Interpret Pictures Used in Elementary Geography. J. of G. *34* (1935), 89.
F. Debenham—The Geographer's Protractor. Murby (1938). 6s.
B. B. Dickinson—The Lantern in Class Teaching of Geography. S.W. *10* (1908), 81.
L. A. Doust and W. G. Savory—How to Sketch Sea, Town and Country. Warne (1930). 6d.
J. Fairgrieve—Kinema in Teaching Geography. S.W. *19* (1917), 191.
J. Fairgrieve—Kinematograph and Geography. S.W. *15* (1913), 243.
R. J. Finch—Geography and the Blackboard. Evans (1923). 4s. 6d.
M. F. Fowler—Handwork Methods of Teaching Geography. Wheaton (1914). 4s. 6d.
J. H. Garland—The Giant Globe: an Elementary School Project. J. of G. *41* (1942), 328.
M. J. Hile—Use of Photography in Teaching Geography. J. of G. *37* (1938), 55.
J. W. Jarvis—Globes and Mechanised Models in Teaching Geography. S.W. *8* (1906), 12, 54.
E. F. E. Kirk—Application of Broadcasting to Teaching Geography. J.T. *1* (1937), 121.
J. A. Lauerwys—The Film in the School. Christophers (1935). 3s. 6d.
J. H. Leonard—Some Special Aids in the Teaching of Geography. S.W. *10* (1908), 212.
A. K. Lobeck—Block Diagrams. Chapman & Hall (1924). 22s. 6d.
L. W. Lyde and B. Hosgood—Geography at the Imperial Institute. G.J. *68* (1926), 418.
G. McCroben—Some Geographical Apparatus. S.W. *8* (1906), 299.

E. E. Miller and R. C. Burnham—A Simple Rain Gauge. J. of G. March (1950).

F. Mort—Practical Surveying in Schools. S.G.M. *24* (1908), 91.

C. S. Preble—Teaching Geography in the Two-Year Normal School. J. of G. *30* (1931), 378.

M. J. Proudfoot—Use of Photographs in Teaching Geography at Four Primary Levels. J. of G. *34* (1933), 61.

C. Rawnsley—Visual Education (b) The Use of Film Strip. S.R. *1* (1946).

Rudolf Reinhard—Museum of Regional Geography in Leipzig. G.R. *24* (1934), 219.

G. H. Savory—Geography Albums. S.W. *17* (1915), 283.

J. S. Smith—Study of Geographical Pictures. J.T. *1* (1937), 117.

L. M. Smith—Devices to Create Interest in Geography. J. of G. *35* (1936), 134.

F. Smithson—Patterns and Notes for Fourteen Block Models Illustrating Geological Structure. Murby (1928). 1s. 6d.

J. H. Stembridge—Staffs. Geographical Exhibition. O.U.P. (1934). 1s. 6d.

G. A. Stokes—The Aerial Photograph—A Key to the Cultural Landscape. J. of G., January (1950).

W. H. J. and H. S. L. Watkins—How to Look at Pictures. Macmillan (1935). Pt. I, 1s. Pt. II, 1s. 6d.

K. E. Vayett—Children's Response to Geography Pictures. J. of G. *40* (1941), 262.

D. O. Vegter—Using Still Pictures in Geography. J. of G., November (1949).

A. Wilmore—Aids to Good Geographical Teaching. (Newspapers, Photographs, Rocks.) S.W. *12* (1910), 411.

Models

A. Bremner—A New Medium for the Construction of Geographical Models. S.G.M. *34* (1918), 342.

C. B. Brown and F. Debenham—Structure and Surface Methods of Making Block Diagrams]. Arnold (1929). 10s. 6d.

F. L. Lowther—Permanent Clay Geographical Models. S.W. *20* (1918), 70.

Modern Schools (see Secondary Modern Schools)

Regional Survey in General

P. Abercrombie—Planning in Town and Country. Hodder (1937). 1s.

M. M. Barker—Regional Survey: Its Use in Education. S.G.M. *30* (1914), 321.

S. Branford and A. Farquharson—Introduction to Regional Survey. Le Play Soc. (1924). 2s. 6d.

J. C. Cox—How to Write the History of a Parish. Allen & Unwin (1909). 4s. 6d.

R. E. Dickinson—Le Play Method in Regional Survey. Le Play Soc. 3d.

C. C. Fagg—Outline Scheme for Social Surveys. South Eastern Naturalists. 6d.

C. C. Fagg and G. E. Hutchings—Introduction to Regional Surveying. C.U.P. (1930). 7s. 6d.

H. J. Fleure—Suggestions for Study of Local Antiquity. G.A. (1920). 4d.

G.A.—Local Studies. (Revised Ed., 1949.) 3s. or 3s. 3d.

Patrick Geddes—Survey of Cities. S.R. *1* (1908), 74.

Le Play Soc.—Exploration (a Guide to Social Survey). (1938.) 4d.

W. H. McLean—Regional and Town Planning. Crosby Lockwood (1930). 21s.

Secondary Modern Schools

Council for Curriculum Reform—The Content of Education. U.L.P. (1945).

J. J. B. Dempster—Education in the Secondary Modern School. Pilot Press (1946).

J. Duncan—Education of the Ordinary Child. Nelson (1942). 15s.

A. H. T. Glover—A New Education for a New Age. Nelson (1946). 15s.

Min. of Ed.—The New Secondary Education. H.M.S.O. (1947).

Scot. Ed. Dept.—Report on Secondary Education, 1947. H.M.S.O. (1947).

Syllabus and Content

T. F. Barton—Meteorology and the High School. J. of G. *42* (1943), 81.

H. F. Becker—Geography Curriculum. J. of G. *44* (1945), 51, 105.

N. A. Bengston—Political Geography in the High School. J. of G. *35* (1936), 82.

W. J. Berry—Content and Grouping of Geography. J. of G. *32* (1933), 236.

H. A. Burrill—A Geography Program for the High School. J. of G. *33* (1934), 231.

G. G. Chisholm—Situation of Towns as a Subject of Teaching in Secondary Schools. S.G.M. *30* (1914), 505.

J. C. Cunningham—First Course in Geography. S.W. *8* (1906), 405.

D. K. Curtis—Geology as Basis for Elementary School Geography. [A School Investigation]. J. of G. *37* (1938), 143.

Dalton Plan—Assignments in Geography. Bell (1922). 2s.

C. Edmunds—Erosion Problem in High School Geography Classes. J. of G. *40* (1941), 30.

C. M. Fleming—Research and the Basic Curriculum. U.L.P. (1947). 7s. 6d.

O. W. Freeman—Teaching Geographic Relationship in World Problems. J. of G. *35* (1936), 40.

G.A.—Scheme for First Course in Geography. G.A. (1919). 1s.

James Geikie—Fragments of Earth Lore (First Paper). Bartholomew (1893). 12s. 6d.
Geography in Elementary and Secondary Curricula. J. of G. *36* (1937), 154.
A. H. Harries—Schemes for Geography Teaching. S.W. *14* (1912), 124.
R. Langebeck—Der erdkündliche Unterricht nach der neuen Lehrplänen. G.Z. *1* (1915), 442.
G. B. Mackie—Study of Land Forms in the School. S.G.M. *31* (1915), 23.
M. C. March—Place of Home Region in School Curriculum. S.G.M. (1914), 595.
J. A. Mortlock—Geography Syllabus for First School Certificate. J.E. (1934), 137.
Scot. Cncl. for Research in Ed. Curriculum for Pupils from 12 to 15: Advanced. Report 3. Geography. U.L.P. (1931) 6d.
H. J. Warman—A Graduation Programme with Geography as Core Theme. J. of G., March (1950).
U. Wilson—Teaching Geology in Schools. P.G.A. *58* (1947), 1.

PART III. SUGGESTIONS, ESPECIALLY FOR TEACHERS IN SECONDARY MODERN SCHOOLS, AS TO SOURCES OF INFORMATION.

A. Statistical and Economic

Accounts relating to Trade and Navigation of United Kingdom: Monthly, H.M.S.O.
Britain and the Colonies, H.M.S.O.
Colonial Office Reports Series: H.M.S.O.
Monthly Bulletin of Statistics: Statistical Office, U.N.O.
Monthly Digest of Statistics: Central Statistical Office, H.M.S.O.
Overseas Economic Surveys: H.M.S.O.

Statesman's Year Book.
Whitaker's Almanack.
Year Books of the Dominions

B. Current Affairs

British Survey (new form, monthly, including a section on "The Course of Events"): British Society for International Understanding, 36, Craven Street, W.C.2.
British Survey (Popular Series): Geo. Gill & Sons, Ltd.
H.M.S.O.—Many publications, white papers, etc.
Listener: B.B.C.
World Affairs: 119, Chancery Lane, W.C.2.
World Review: 43-44, Shoe Lane, E.C.4.
World To-day: Royal Institute of International Affairs, Chatham House, St. James's Square, S.W.1.

PART IV. ADDITIONAL LIST OF MAGAZINES USEFUL TO TEACHERS OF GEOGRAPHY.

Alpine Journal.
Annales de Géographie.
Australian Geographical Magazine.
Calcutta Geographical Review.
Canadian Geographical Journal.
Canadian Geographical Magazine.
Compass (Cambridge).
Die Erde (Berlin).
Erdkunde (Bonn).
Farm and Forest.
Geographica Helvetica (Bern).
Geographical Magazine.
Geological Magazine.
Indian Geographical Journal.
Information Géographique.
International Affairs.
Irish Geographer.
Journal of Geographical Society of Ireland.
National Geographic Magazine.

Our Merchant Ships.
Quarterly Journal of the Geological Society.
Quarterly Journal of the Royal Meteorological Society.
Revue de Géographie Alpine.
Revue de Géographie Humaine.
Sankhya: Indian Journal of Statistics.
South African Geographical Journal.
The Seafarer.
Town Planning Review.
Walkabout (Australian).

APPENDIX VI

IMPORTANT SOURCES OF VISUAL MATERIAL FOR THE TEACHING OF GEOGRAPHY

Partly adapted from that compiled by the Geographical Association Sub-committee for Visual Aids other than Films. Convener: E. F. Mills. February, 1948.

A.—Books on Visual Aids and Sources

1. Audio Visual Methods in Teaching. Dale. Harrap, 30/-.
2. Material for Visual Education. B. M. B. Harris and G. P. Meredith, *Daily Mail* School Aid Dept., New Carmelite House, London, E.C.4. 2/6.
3. Optical Aids Educational Publication No. 115, H.M.S.O. Contains much information on mechanical aspects of all visual aids. (At present out of print, but it is likely to be re-issued in new form).
4. Geography Teaching Films. Prepared by the Geographical Association Films Committee and British Film Institute. Published by the British Film Institute, 1948, 164, Shaftesbury Avenue, W.C.2. 2/6.

B.—Periodicals

(*a*) CONTAINING PICTURES, HELPFUL INFORMATION, REFERENCES, ETC.

1. *Geography*. Geographical Association, c/o The Park Branch Library, Duke Street, Sheffield, 2.
2. *Pictorial Education*. Evans Bros., Ltd., Montague House, Russell Square, London, W.C.1.
3. *Canadian Geographical Journal*. S/Ldr. W. H. Corkill, The Mead, West Dumpton Lane, Ramsgate, Kent.

4. *National Geographic Magazine.* Barclays Bank, Ltd., Chief Foreign Branch, 168, Fenchurch Street, E.C.3.
5. *Geographical Magazine.* 40, William IV Street, W.C.2.
6. *Meteorological Charts.* Air Ministry (M.O. 11), Victory House, London, W.C.2.
7. *British Survey* (Schools Edition). George Gill & Sons, 67-68, Chandos Place, London, W.C.2.
8. *Observation.* Leplay House Press, Albert Road, Malvern, Worcestershire.
9. *International News Sheet.* Youth Education Officer, Council for Education in World Citizenship, 11, Maiden Lane, W.C.2. 7/6 p.a. (Monthly news sheet on current affairs).
10. *Picture Post.*
11. *Illustrated.*
12. *Teacher's World.*
13. *The Schoolmaster.*

The Magazines and Reports of the British and Foreign Bible Society and the various Missionary Societies provide useful material.

(*b*) ON FILMS.

1. *Sight and Sound.* British Film Institute, 164, Shaftesbury Ave., W.C.2. Quarterly 2/6 or 10/6 p.a. post free. (Deals with artistic and cultural aspects).
2. *Look and Listen.* 62, Doughty Street, W.C.1. 1/6 per month or 17/6 per year. (Deals with educational aspects).
3. *Film User.* Current Affairs, Ltd., 174, Brompton Rd., S.W.3. (Deals with 16 mm. film and 35 mm. filmstrip).
4. *Visual Education.* National Committee for Visual Aids in Education. 33, Queen Anne Street, W.1. 14/- p.a. post free. Reduction on bulk orders.

C.—Publishers of Pictures suitable for Episcopic and Wall Display

1. G. Bell & Sons, Ltd., York House, Portugal St., W.C.2.

2. A. & C. Black, Ltd., 4, Soho Square, W.1.
3. G. Harrap & Sons, Ltd., 182, High Holborn, W.C.1.
4. Thos. Nelson & Sons, Ltd., 3, Henrietta St., W.C.2.
5. Newton & Co., Ltd., 72, Wigmore St., W.1.
6. J. Nisbet & Co., Ltd., 22 Berners St., W.1.
7. Macmillan & Co., Ltd., 10, St. Martin's Street, W.C.2.
8. Geo. Philip & Son, Ltd., 32, Fleet Street, E.C.4.
9. Univ. of London Press, Little Paul's House, Warwick Square, E.C.4.

D.—Visual Material on Special Topics

1. The Imperial Institute, South Kensington, S.W.7. (Picture postcards, 1/- per set and specimens of Economic Products of Empire Origin).
2. Central Office of Information, Montague Mansions (Block 1), Crawford Street, Baker Street, London, W.1. (Publications on British Commonwealth & Empire).
3. National Association of Girls Clubs and Mixed Clubs, 32, Devonshire Street, W.1. (Exhibitions and photographs for hire on other nations).
4. *Daily Mail* School Aid Dept., New Carmelite House, London, E.C.4. (Material on a wide range of subjects. Catalogues).
5. Science Museum, South Kensington, S.W.7. (Sets of photographs on various subjects).
6. British Museum (Natural History), Cromwell Road, S.W.7. (Picture postcards on many subjects. Catalogues obtainable).
7. Council for Education in World Citizenship, 11 Maiden Lane, W.C.2. (Wall News Sheet monthly on International Affairs, free to schools. 7/6 p.a. to others).
8. Education Department, International Wool Secretariat, 18-20, Regent Street, S.W.1. (Good material on world wool production).

9. Educational Publicity, 17, Denbigh Street, London, S.W.1. (Good material in form of Visual Units, e.g., Wall Display, Film Strip, etc., all correlated).
10. Ministry of Agriculture, Fisheries and Food, 55, Whitehall, S.W.1.
11. Ministry of Fuel and Power, 7, Millbank, S.W.1. (Good wall posters on coal).
12. Pictorial Charts Service, 3, Harrington Road, South Kensington, S.W.7. (General Visual Aids).
13. The United Nations. London Information Office, Russell Square House, Russell Square, W.C.1.
14. The Visual Aid Departments of:
    - The Church Missionary Society (Central Operations), 6, Salisbury Sq., E.C.4.
    - The London Missionary Society, 42, Broadway, S.W.1.
    - The Methodist Missionary Society, 25, Marylebone Rd., N.W.1.
15. Pilot Press, 48, Great Russell Street, W.C.1.
16. The Imperial Tobacco Co., Ltd., 141, Drury Lane, W.C.2.
17. British Rubber Development Board, 19, Fenchurch Street, E.C.3.
18. The Iron and Steel Trades Confederation, Victoria House, Vernon Place, W.C.1.
19. The Tea Marketing Expansion Board, Tea Centre, Lower Regent Street, London, S.W.1.
20. The British Transport Commission, including :—
    - L.M. Reg. Passenger Manager, New Street Station, Birmingham.
    - E. Reg. Advertising Manager, 26, Pancras Road, N.W.1.
    - L.P.T.B., 55, Broadway, Westminster, S.W.1.
21. The G.P.O., St. Martin's le Grand, E.C.1.
22. I.C.I., Ltd., Nobel House, Buckingham Gate, S.W.1.
23. Trinidad Lake Asphalt Co., Ltd., Tavistock Sq., W.C.1.

24. Tate & Lyle, Ltd., 52, Cadogan Square, S.W.1.
25. Grand Union Canal Co., Ltd., Transport House Reservoir Road, Ruislip, Middlesex.
26. The Port of London Authority, Trinity Square, E.C.3.

Aerial Pictures

27. Aerofilms, Ltd., 27, Old Bond Street, W.1.
28. Aeropictorial Ltd., Chesham House, 136, Regent Street, W.1.
29. R.A.F. Air Photographs: limited supply by arrangement with the Geographical Association.

Old Prints

30. Picture Post Library, 43, Shoe Lane, E.C.4.

E.—Visual Material on Other Countries

1. Africa House, Trafalgar Square, W.C.2.
2. Australia House (Director of News and Publicity), Strand, W.C.2.
3. United States Information Office, American Embassy, 1, Grosvenor Square, W.1.
4. Canadian Trade and Publicity, Canada House, Trafalgar Square, W.C.2.
5. Canadian National Railways, 17, Cockspur Street, S.W.1. (Travel brochures and maps).
6. Canadian Pacific Railways, 62, Trafalgar Square, W.C.2. (Travel brochures and maps).
7. Egyptian Education Office, 75, South Audley Street, W.1.
8. Indian Information Bureau, 367, Winchester House, Old Broad Street, E.C.2.
9. New Zealand House, 415, Strand, W.C.2.
10. High Commissioner for Southern Rhodesia, 429, Strand, W.C.2.
11. East African Dependencies, Information Office, Grand Buildings, Trafalgar Square, W.C.2.

12. Sudan Government, Wellington House, Buckingham Gate, S.W.1.
13. Burma Trade Commissioner, Imperial Institute, S.W.7.
14. Iranian Embassy, 26, Prince's Gate, S.W.7.
15. The Imperial Institute, South Kensington, S.W.7. (An efficient organisation for assisting teachers).
16. The Chinese Government Information Office, 51, New Cavendish Street, W.1.
17. Society for Cultural Relations with the U.S.S.R., 14, Kensington Square, W.8.

The above, and all other Embassies, are most helpful in giving information. Many have photographs, exhibitions, film strips and films available for free loan.

F.—Sources of Film Strips

1. F. United States Information Office, American Embassy, 1, Grosvenor Square, W.1. (This Embassy, besides lending filmstrips, will also lend projectors for only the cost of return postage).
2. F. L.P.T.B., 55, Broadway, S.W.1.
3. F. Imperial Institute, South Kensington, S.W.7 (on Empire Industries).
4. F. Central Office of Information, Montague House, Baker Street, W.1.
5. F. National Association of Girls' Clubs and Mixed Clubs, 32, Devonshire Street, W.1.
6. F. New Zealand Government, Public Relations Officer, 415, Strand, W.C.2.
7. P. Visual Education, Ltd., 9, Upper Berkeley Street, Portman Square, W.1.
8. F. National Film Board of Canada, 40, Piccadilly, W.1.
9. P. British Industrial Films, Ltd., Chenil Galleries, King's Road, S.W.3.

10. H.P. Visual Information Service, 168a, Battersea Bridge Road, S.W.11.
11. P. Common Ground, Ltd., E.S.A., Esavian House, 181, High Holborn, W.C.1.
12. P. Newton & Co., Ltd., 72, Wigmore Street, W.1.
13. F. Czechoslovak Embassy, 8, Grosvenor Pl., S.W.1.
14. F. Netherlands Inform. Bureau, Stratton House, W.1.
15. H.P. British Instructional Films, Ltd., Film House, Wardour Street, W.1.
16. F. British Rubber Development Board, 19, Fenchurch Street, E.C.3.
17. P. International Wool Secretariat, 18-20, Regent Street, S.W.1. 2s. 6d. each.
18. P. Centurion Filmstrips, distributed by Henry Lee, 627, Greenford Road, Greenford, Middlesex.
19. P. Daily Mail School-Aid Department, New Carmelite House, E.C.4.
20. P. Dawn Trust Films, Aylesbury, Bucks.
21. P. Educational Productions, Ltd., 17, Denbigh Street, S.W.1.
22. P. G.B. Instructional Films, G.B. Film Library, Aintree Road, Perivale, Greenford, Middlesex.
23. P. Kay-Keystone Magazines : Kay Carlton Studios, 72a, Carlton Hill, St. John's Wood, N.W.8.
24. P. National Interest Picture Productions, Ltd., 21, Soho Square, W.1.
25. P. Picture Post Filmstrips : Education Department, Hulton Press, Ltd., 43, Shoe Lane, E.C.4.
26. P. Pitman Filmstrips : Sir Isaac Pitman & Sons, Ltd., Pitman House, Parker Street, Kingsway, W.C.2.
27. P. Unicorn Head Visual Aids, Ltd., Broadway Chambers, 40, Broadway, S.W.1.

F. Available on free loan.
H. Available on hire.
P. Available for purchase. Normal prices range from 5s. to 15s. each. There are a few coloured filmstrips at £1 5s.

Reliable reviews of film strips appear in *Visual Education*, National Committee for Visual Aids in Education, 33, Queen Anne Street, W.1.

The following will make up film strips from material provided:—

Visual Information Service, 168a, Battersea Bridge Road, S.W.11. 4d. per frame.
Newton & Co., Ltd., 72, Wigmore Street, London, W.1. 6d. per frame.
Blackheath Film Unit, 9, North Street, Leatherhead, Surrey. 6d. to 1s. per frame.
Dufay Chromex, Rythe Works, Portsmouth Road, Thames Ditton, Surrey. 1s. per frame.
Kay, 72a, Carlton Hill, St. John's Wood, N.W.8. 1s. to 2s. per frame.

G.—Sources of Standard Slides

1. Newton & Co., Ltd., 72, Wigmore Street, W.1.
2. Imperial Institute, South Kensington, London, S.W.7.
3. Geographical Association, c/o The Park Branch Library, Duke Street, Sheffield, 2.
4. The National Trust, 42, Queen Anne's Gate, S.W.1.
5. British and Continental Railways.

The following firms will make up slides from material provided :—

Flatters & Garnett, 309, Oxford Road, Manchester, 13. From 2s. 6d. upwards.
G. M. Mason, 1, Osborne Road, Southampton.
Newton & Co., Ltd., 72, Wigmore Street, W.1. 2s. to 3s. each.
Blackheath Film Unit, 9, North Street, Leatherhead, Surrey. 3s. 6d. each.
Kodak, Ltd., Kingsway, W.C.2 ; 184, Regent Street, W.1 ; 91, Bishopsgate, E.C.2.

H.—Sources of Geographical Films

1. F. Central Film Library (including G.P.O. and Empire Films), Imperial Institute, South Kensington, S.W.7.
2. H. G.B. Instructional Film Library, Aintree Road, Perivale, Greenford, Middlesex.
3. H. Educational Foundation for Visual Aids, 33, Queen Anne Street, W.1.
4. H. British Instructional Films, Ltd., Mill Green Road, Mitcham, Surrey.
5. F. The British Gas Council, 1, Grosvenor Place, S.W.1.
6. H. R. W. Proffitt, Ltd., 49-51, Knowsley Street, Bolton.
7. H. Dartington Hall Film Unit, Dartington Hall, Totnes, South Devon.
8. H. Dolland & Aitchison, Ltd., 37, Bond Street, Leeds.
9. P. Educational Films Bureau, Tring, Herts.
10. H. Wallace Heaton, Ltd., 126, New Bond Street, W.1.
11. F. Chinese Government Information Office, 51, Cavendish Street, W.1.
12. F. Timber Development Association, 71, Cannon Street, E.C.4.
13. H. Délégation de la Cinématographie Francaise, 27, Queen Anne Street, W.1.
14. H. March of Time, 1, Dean House, 4, Dean Street, W.1.
15. H. Workers Film Association, Transport House, Smith Square, S.W.1.
16. F. Canadian Government, Department of Trade and Commerce, Blackburn Road, N.W.6.
17. F. Canadian Pacific Railway Co., Publicity Agent, 62, Trafalgar Square, W.C.2.
18. F. Dominion of New Zealand, Government Office, 415, Strand, W.C.2.

19. F. Petroleum Films Bureau, 46, St. James's Place, S.W.1.
20. F. Union of South Africa, Publicity and Travel Bureau, South Africa House, Trafalgar Square, W.C.2.
21. H. Dawn Trust Film Library, Aylesbury, Bucks.
22. H. Boulton Hawker Films, Hadleigh, Suffolk.
23. H. Religious Films Society, 6, Eaton Gate, Westminster, S.W.1.
24. Irish Tourist Association, 19, Regent Street, S.W.1.

F. Available on free loan.
P. Available for purchase.
H. Available for hire.

J.—Useful Lists of Geography Films

List of Geography Films, 2s.—British Film Institute, 164, Shaftesbury Avenue, W.C.2.

Sources of Sponsored Films, 6d.—British Film Institute, 164, Shaftesbury Avenue, W.C.2.

List of Geography and Travel Films—National Federation of Educational Film Groups, c/o B. E. Gillett, Colmers Farm Secondary Modern School, Rubery, Birmingham.

Visual Aids: Films and Filmstrips. Part II. Geography for Secondary Schools—Educational Foundation for Visual Aids, 33, Queen Anne Street, W.1. 2s. 9d. post free.

K.—Miscellaneous Information

Rear Projection Material (and Screens) of Elastoid may be obtained from Newton & Co., Ltd., 72, Wigmore Street, W.1.

APPENDIX VII

HOME-MADE EQUIPMENT

Home-made Instruments

1. In Secondary Schools and particularly in Modern Schools it is often found that surveying arouses great interest and at the same time gives a practical demonstration of elementary geometry and trigonometry. Children in the first year find a simple chain survey well within their power, second year pupils will tackle plane-table survey and simple contouring, and the third and fourth years will produce very good results with using the prismatic compass and model theodolite.

2. The compass must be purchased and a chain or tape forms the equipment of every school, but the other survey apparatus is generally too expensive even if the simplest models are required. Most of the instruments can be fairly easily constructed in the Craft Centre, or in the Geography Room if it is well equipped.

3. When making these instruments the teacher should remember to use brass or some other non-magnetic material for any parts that may affect a compass which is being used near them.

Ranging Poles

4·1. These are the first requirements for marking ends of base lines, etc. The standard pole is made of a straight grained wood such as ash, one inch in diameter and six feet long. One end is pointed and shod with sheet iron. The pole is painted in contrasting colours, generally red, white, black, repeating, each band of colour being one foot wide.

4·2. A more easily seen marker is the " Belisha Beacon ". The constructional details of this are shown in Figure 53. Two discs of metal or plywood, A and B, are halved together at right-angles. Two slots at right-angles are then cut in the top of the ranging pole, the discs forced in and held in place by screws. These discs are then painted yellow, which is very easily seen over long distances by the naked eye if the paint is kept clean. The appearance from the side of these discs is that of a sphere, but any errors due to their size will be negligible.

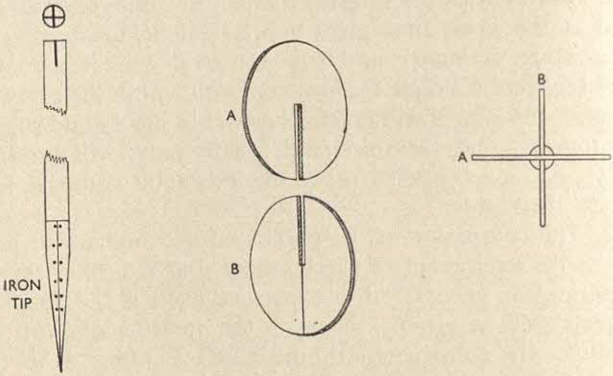


FIG. 53.—RANGING POLES.

Levelling Stave

5. This is usually a telescopic instrument, but for most elementary surveys it is sufficient to have a twelve foot length of two-by-one painted white and with the feet and inches marked off on it in red.

Measuring Angles

Right-angles

6. For the taking of offsets a simple means of obtaining a right-angle is required. The simplest method (Figure 54) is to drill two $\frac{1}{8}$-inch holes at right-angles near the top of one of the ranging poles. If small children are to use it, then a special short model can be made with the holes about four feet six inches from the ground.

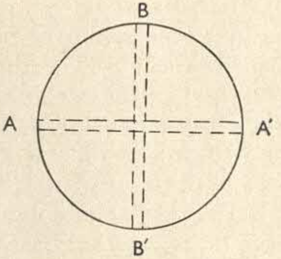


FIG. 54.—SCOUT POLE.

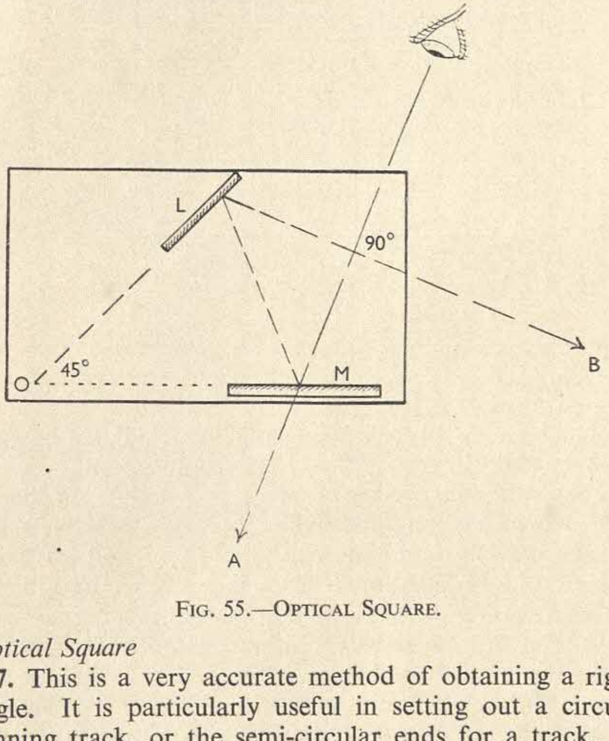


FIG. 55.—OPTICAL SQUARE.

Optical Square

7. This is a very accurate method of obtaining a right-angle. It is particularly useful in setting out a circular running track, or the semi-circular ends for a track. In

Figure 55, two small mirrors, about 1½ inches square, L and M, are fixed by means of metal clips to a baseboard. The angle between the mirrors is 45°. The top half of the mirror M has been scraped clear of the backing so that it is clear glass. The object A, say a ranging pole at one end of a base line AB, is viewed through the top clear portion of M. The surveyor moves until he sees the reflected image of B coincident with A. Then the angle subtended at that position by the rays from the ends of the base line is 90° and the observer is standing on the circumference of the circle of which AB is a diameter.

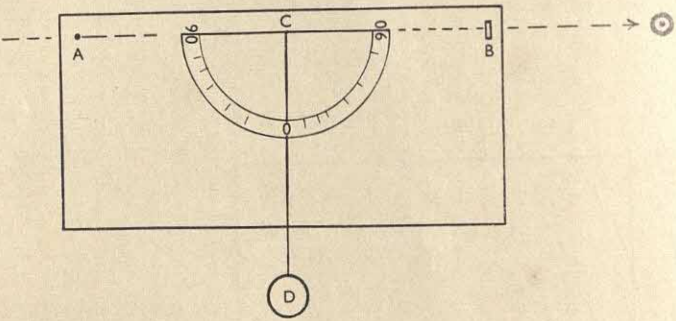
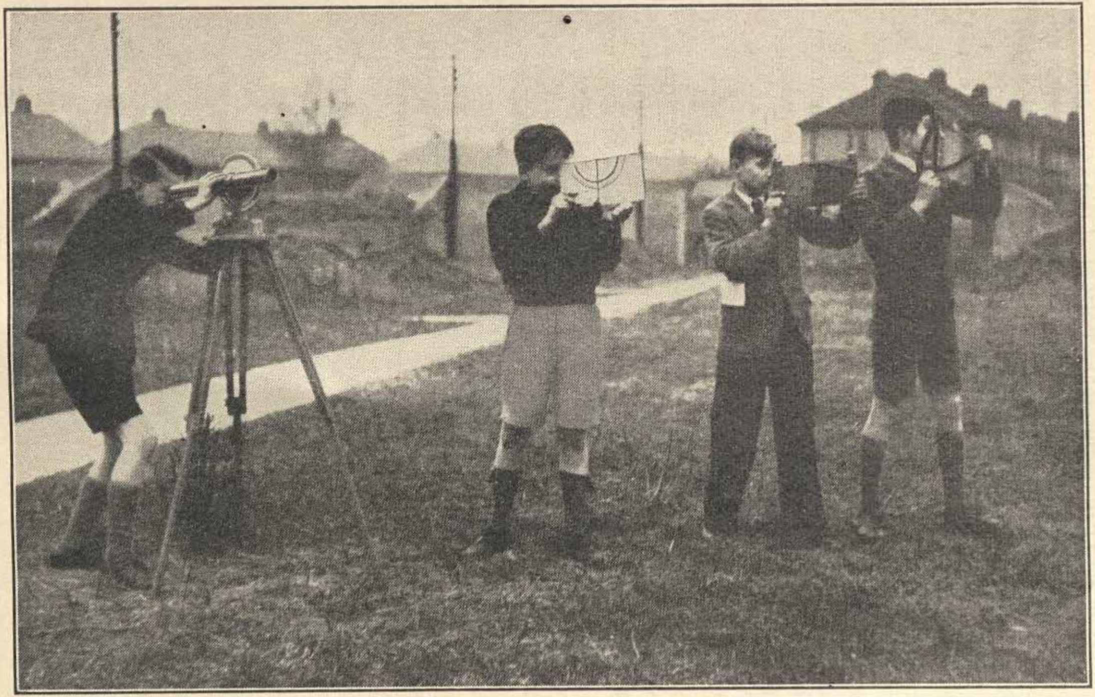


FIG. 56.—CLINOMETER.

Clinometer

8·1. This very simple instrument (Figure 56) can be made by every child in one ordinary classroom period. It consists of a rectangular piece of wood, plywood or hardboard, about ten inches long and five inches wide. A line AB is drawn parallel to one long edge and about ½ inch from it. A small round-headed brass screw is partly screwed in at A and a small ring, such as is used at the end of a curtain wire, is put in at B. These two form a ring-and-bead sight. A protractor is fixed so that its reference line coincides with the line through AB and its centre is at C. It is actually better if the protractor is drawn on good quality paper.



[By courtesy of Mr. P. R. Heaton

FIG. 57 – BOYS USING HOME-MADE EQUIPMENT

Then the zero can be put at the bottom of the curve and 90° along the line AB. When this is done readings are taken off directly without any mental arithmetic being involved. At C is a small screw to which is fastened a piece of twine or thread. To this is attached a weight D such as a ½-inch nut. This acts as a plumb bob when sights are being taken.

8·2. On the reverse side of the rectangle it may be found useful to affix a sheet of paper on which is given a brief description of how to use the instrument for finding the height of a distant object, by taking angles of elevation from the ends of a measured horizontal base line which is pointing towards the object.

The Sextant

9·1. This instrument should be in every Geography room. Not only is it valuable for survey work, but it is most useful when dealing with Latitude. Daily shootings of the sun at noon can be made by the first year children and a record kept. Thus the movement of the sun can be graphed and the teaching of the reasons for the seasons is made easier.

9·2. The essentials of the sextant (Figure 58) are :—

A triangular base of plywood or metal, sector shaped, as shown. If metal is used only a framework is required, since it will be sufficiently strong and rigid without the extra weight at the centre.

An arm AD, pivoted at A so that it can move freely over the arc BC. In this arm is cut a small rectangular opening through which the scale can be read. Through two small holes, L and M, is stretched a fine wire which is then soldered to the back of the arm. This acts as a hair line for increasing the accuracy of the readings.

A small mirror fixed firmly to the arm at A. The front face of the mirror must coincide with the centre line of the arm and the hair line LM.

A second mirror at E is parallel to the line AC. The upper (or outer) half of this mirror is scraped clear so that the horizon H can be viewed directly. The reflection

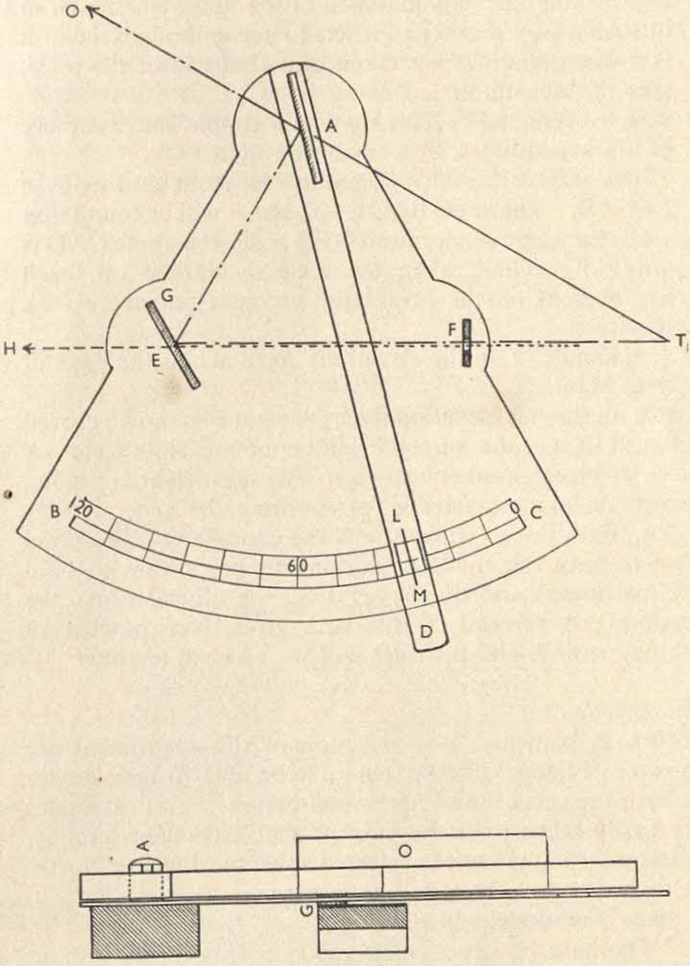


FIG. 58.—THE SEXTANT.

of the object O is seen alongside this in the mirror half of E. The mirror is mounted at the outer end, at G, in in such a way that a gap is left to accommodate the arm AD when readings are taken near that end of the scale. (See the elevation.)

A back-sight F. This may be a simple slit in a piece of blackened brass, or a small ring-sight.

The scale BC. This is marked off from zero at C to 120°at B. The angle BAC is 60°, but it will be found that when the angle of elevation OTH is 30° the angle CAD is only 15°. Thus, when the scale is marked off, each five degrees on the protractor becomes ten degrees on the scale.

A handle O (in the elevation) fixed across the back of the sextant.

9·3. In the side elevation the back-sight F is shown moved forward so that the mirror E can be more plainly seen. A piece of blue cellophane stuck to this back-sight is a good protection against glare when shooting the sun.

9·4. With this instrument and the clinometer it is a good plan to have the children working in pairs, one to hold the instrument and do the sighting, the other to take the readings. A reversal of rôle both gives them practice in taking readings and provides a check on each reading.

The Theodolite

10·1. A plan and side elevation of this instrument are shown in Figure 59. We require to be able to read angles in both the vertical and horizontal planes. Vertical angles are easily taken with the base of the instrument levelled. Horizontal angles must be referred either to Magnetic North, or to one end of the base line as zero.

10·2. The model consists of :—

The base F. This is the top of a tripod stand about four feet high. The tops of the legs are not shown in the sketch

E, a disc of plywood about $\frac{3}{8}$ inch in thickness and

8 inches in diameter. On the outer rim of this disc is fixed the horizontal scale, reading in both directions from 0° to 360°. When setting up the instrument some way must be found of aligning the zero line either with the Magnetic North or the base line. Once this has been done, however, the disc E must be clamped to the base so that any movement of the disc D will not disturb it. This is accomplished by sinking the head of a $\frac{1}{4}''$ bolt into

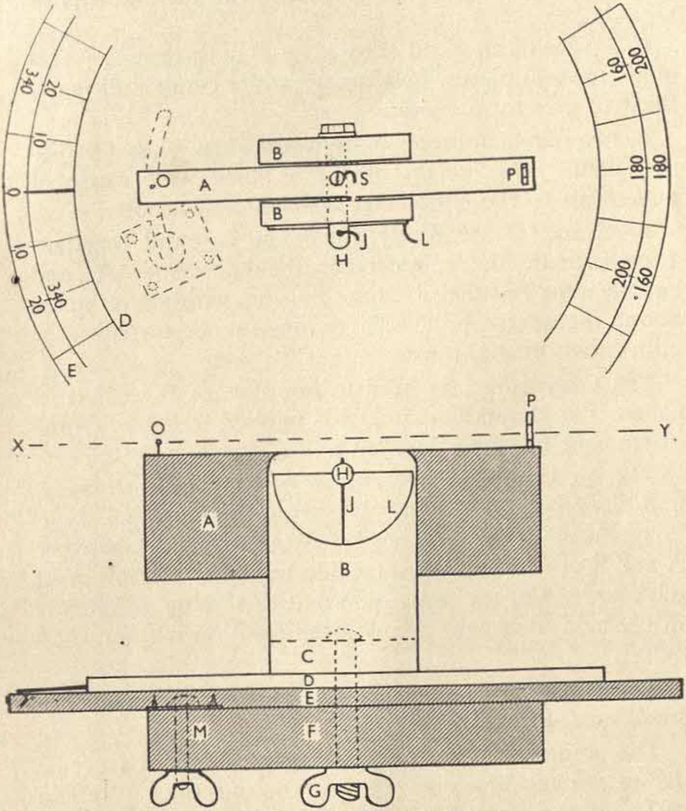


FIG. 59.—THE THEODOLITE.

the disc E. A thin brass plate is screwed to E so holding the bolt and E together. To allow the bolt to move relatively to the base a curved slot is cut for it in F, so as to allow E about 20° freedom of movement. A wing nut on the bolt, M, clamps F and E together when the centre line of E has been correctly aligned.

D, a disc of plywood similar to E in thickness but about 6″ in diameter. To D is glued and screwed the spacer C so that the centre line of C coincides with the diameter of D.

C, a piece of plywood 4″ by $\frac{1}{2}$″ by $\frac{3}{4}$″ in thickness. This holds the two pieces, B, $\frac{1}{2}$″ apart, while being sufficiently thick to give them rigidity.

B, two identical pieces of plywood 4″ by $\frac{3}{8}$″ by 6″ to 8″ in height. This height allows a fairly wide angle of movement to the clinometer which they support.

B, C and D are firmly glued and screwed together. They provide the support for the clinometer A, and enable it to be turned smoothly and without jerkiness about the centre bolt. The wing nut, G, provides the adjustment for tightness.

The protractor L is fixed to one face of B so that its centre is at H and its diameter is parallel to OP when the instrument has been levelled and OP is horizontal.

The clinometer A is a rectangle of plywood with a ring-and-bead sight as shown. It is fixed rigidly to a $\frac{1}{4}$″ bolt, H, by means of the set screw S. Washers of cork between A and B provide sufficient friction to make the movement of A smooth at the same time that it is being sufficiently firmly held to remain in any given position without difficulty.

The pointer J is a needle, brazed, or a force fit, in a small hole drilled in H.

The pointer for the scale on E is made from a needle driven eye end first into the disc D along the centre line of D, i.e. the centre line of the instrument.

10·3. The two protractors for this instrument are difficult to make and they may best be provided in the form of circular celluloid protractors fixed to the wood by means of countersunk screws.

10·4. It may be pointed out that, if the scale reading of the base line be observed and the angular *difference* measured, there is no need for the movement of E relatively to F. On the other hand, the adjustment of E described above not only gives useful practice in manipulation but saves calculation and greater opportunity for error.

10·5. The instrument may be levelled with small spirit levels, but if one is to be fixed to the base the best type to use is the circular one, with a central circle engraved in the glass top, in which the bubble is centred.

The Home made Film Strip

11·1. To a very large extent the film strip is taking the place of the old type of lantern slide. There are several reasons for this, but cheapness is one of the main advantages of the film strip and its bulk makes possible the storage of a large number of illustrations in a very small compass. A number of good quality machines are available for the projection of the film strip and many of these are adaptable for the newer type of 2″ × 2″ slide as well.

11·2. The Geography teacher, however, suffers from the same disadvantage when using the film strip as in using the older kind of lantern slide and in many respects the manufacturer's film strips are not of the type that recommends itself to him. The film strip, unlike the slide, can only show the illustrations in the manufacturer's sequence, which is not necessarily that of the teacher, nor are the points emphasised in the illustrations those that the teacher would select himself if he were able to plot the sequence and the illustrations to be used.

11·3. It is therefore a great advantage if the teacher can make his own film strips and film slides if he wishes to vary the order in which they are used, even if in doing so he is limited to those areas of the world which he and his friends are able to visit: the more distant areas can still be covered by the manufacturer. These notes are concerned with showing how this is possible with the minimum of equipment and that equipment of a simple non-precision nature which can be made in the woodwork room of the average school. The projector used by the writer was the G.B. model 38, although other models which show both the 2″ slide and the film strip could be adapted for the making of film strips. No structural alterations are needed to the projector itself, which can still be used for its normal purposes. The camera used for making the pictures and also photographing maps and diagrams was the Robot model 2, although other types of camera taking 35 mm. film could be used as well. Other sizes of film could also be used, but, as it will be found necessary to take large numbers of photographs only a few of which will be used in the finished strip, 35 mm. is by far the most economical film to use, even if there were no difficulty at the moment in obtaining the other sizes. A fine-grained film of the type of Kodak panatomic X should be used and it should be developed with one of the many fine-grain developers which can be obtained. The maps and diagrams can be photographed on positive film which is also used for making the finished strip. A simple holder is required for the camera to photograph maps; the maps can be placed on the floor and photographed from above, the camera being clamped in its holder to the shelf of a book-case or to the edge of the table so that the map is in focus.

11·4. Before the strip is commenced, after the subject has been chosen, a " scenario " should be made which will embody the main features of the strip, decide the sequence and also show those items which must be photographed directly and those which are to be illustrated by maps and diagrams. If a local survey is contemplated, the making of the sequence and the maps can be a class activity. If, however, the teacher is himself producing the strip, then maps can be most quickly and legibly made on paper about 8″ × 5″ in Indian ink. They should be drawn very boldly and the lettering can be very speedily done with the Uno Pen and Stencils. The writer does all the lettering with the UL 4 and UC 10 stencils. The Uno Pen also makes a strong line for the outlines of the map. To achieve " professional " quality, maps should be drawn on tinted paper to photograph grey, and both White and Black Indian Ink should be used. With long focus lens cameras a supplementary lens may be needed. The Robot, however, with Zeiss Biotar lens, focuses when screwed from its mount to about 7″, which is adequate for most maps. The main detail of the map should be towards the middle, so that if there is an accident in registration when the print is made nothing essential is lost.

11·5. When the maps, diagrams and pictures have been photographed and developed, the next problem is to place them in the correct order on the positive strip. There are two main methods of printing, by contact and by projection. The contact method is simple for making short strips of ten to fifteen pictures but the projection method is more suitable for long strips and where the finished strip is required to fit the automatic advance type of projector.

11·6. To make the contact positive a strip of glass is needed, of the width of the film and long enough for the strip which is being made. The positive film is placed emulsion-side up on a piece of wood also of this width, the negative pictures placed with emulsion-side down on this in the correct order. The strip of glass is then placed on top of all and holds the two films in close contact. An exposure to white light can then be made (60 Watts at about 6 feet for 2 seconds is adequate) and the positive can then be developed. This method, however, is only suitable for short films where the automatic advance does not matter. For long films the possibility of making errors is very large and the finished strip may contain pictures and maps inside out or upside down. The light used can only be a faint red as the film is exposed to it for a long time, and this adds to the difficulty of getting a large number of frames the right way up.

11·7. The projection method is most suitable for long strips. For this method a slide carrier and film carrier are both required, as well as a number of 2″ metal slides.[1] A holder must be constructed, which can be of wood, to hold the film carrier of the projector, and this is mounted on a table so that the projector can project the negative from the slide carrier on to the film in the film carrier. It is necessary with some projectors, such as the G.B., to make a holder to cover the receiving film can, so that the film is not fogged by the general light from the projector. A new positive film carrier has now been made, using a maltese cross movement from a toy cinematograph. This gives rather better spacing between the frames than the carrier of the G.B. film strip projector.

11·8. Each negative must be mounted separately in one of the metal slide frames and care must be taken to see that all are the correct way up and that the lettering will print correctly. As the mounting of the negative can be done in white light, there is no need for errors of this kind to arise. The metal type of slide can be used repeatedly for making strips. A set of 36 is enough for most strips.

11·9. The projector is set up with the negatives in the slides in such a position that, with the lens extended and with a supplementary lens added if necessary, the distance from slide to lens and lens to image is twice the focal length of the lens. With an 8″ supplementary added to the 3″ lens of the G.B. this distance is about 4″. A one-to-one copy can thus be made. If the film used is larger than 35 mm., then a reduction is necessary and the projector and lens should be moved until a sharp image is obtained on the film held in the film carrier in its stand.

11·10. When the correct positions for a good focus are found, it is necessary to cut down the light from the projector and this can be done by inserting four thicknesses of tracing paper in front of the condenser. If this is not enough, a cardboard diaphragm can be made which should be placed behind the projector lens to cut the light down even more. The film carrier is then loaded with positive film in red light and the projector switched on to make an exposure. The film is advanced, a new slide inserted, and exposure made once more. Thus a long strip can be printed in a matter of minutes with little likelihood of error arising. The time of exposure can be found by experimenting with odd strips of film with exposures of three to five seconds. It is then possible to estimate the exposure required for individual frames and to make variations for thin or dense negatives, so that the finished picture on the strip shall be as uniform as possible.

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[1] Such as those made by Messrs. Nebro & Johnson.

11·11. If two projectors are available, much less apparatus need be made, as one projector can be used with the slide carrier and the other for the positive strip. It may still be necessary to make some kind of screening to keep the white light from the positive film in the open type of film can.

11·12. The writer has found that both in Geography and in Science the films produced by the manufacturers are too long for teaching purposes and both he and his colleagues have found that the best length of strip is of ten to twenty pictures and maps. This can be shown as a part of a lesson. With the longer strips the lesson becomes more of a lantern lecture and over weighted on the visual side.

11·13. It should be emphasised that it is necessary to keep a very careful check on negatives if speedy work is to be done. The best method so far found by the writer for the storage of negatives is to pack them in a card filing cabinet in sets of four, each set in a seed envelope with particulars on the outside. Each negative is numbered and recorded in a register. The writer carries the camera on all kinds of journeys and has been able to accumulate a large number of illustrations. These can at first be used as isolated illustrations in the metal framed slides and will later be incorporated in finished film strips.

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